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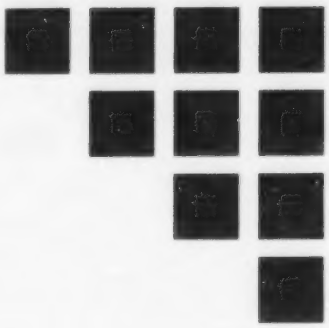
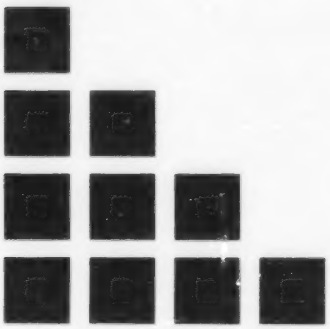


Dropping Out of High School: Definitions and Costs

R-01-1E

Applied Research Branch
October 2000

Research Paper



Human Resources Development Canada
Développement des ressources humaines Canada

Canada

Applied Research Branch
Strategic Policy
Human Resources Development Canada

Direction générale de la recherche appliquée
Politique stratégique
Développement des ressources humaines Canada

Dropping Out of High School: Definitions and Costs

R-01-1E

Applied Research Branch
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Executive Summary

This paper summarizes data on high school dropout rates in Canada and presents additional information on the characteristics of dropouts. The paper also presents research findings on the potential costs of dropping out of high school. One of the main reasons for examining the costs of dropping out is that it focuses attention on the overall unrealized potential of youth, which translates into market and non-market losses for individuals and society.

The School Leavers Follow-Up Survey estimates that the dropout rate, or those who were no longer in school and had not received a high school certificate, diploma or its equivalent, was 15 percent in 1995 for 24 year olds. The Labour Force Survey estimates the dropout rate for 20-24 year olds to have decreased from 17.1 percent in 1990 to 11.9 percent in 1999.

Dropouts are more often male than female. Males often disengage from school after taking on workplace responsibilities and females after taking on family responsibilities. Dropouts are often living alone or with a single parent, or have parents with low levels of education, low socio-economic status or negative attitudes toward education. Aboriginal youth have a high risk of dropping out. Dropouts typically have lower grades, and are less likely to be satisfied with school. Underachievement, misbehavior and disengagement from school begin in the early grades. Dropouts have very low levels of literacy compared to graduates by international standards.

The full-time earnings of male dropouts are somewhat lower than male graduates. Earnings for female dropouts are very low. Dropouts have much lower employment rates and higher unemployment rates than graduates. Many female dropouts do not work at all. Dropping out cuts off future possibilities to succeed because dropouts tend not to have the skills or credentials to pursue further training.

Estimates of the private market rates of return for completing high school are substantial, more than 40 percent for Canadian graduates relative to those who dropped out in Grade 10. Estimates of the net present value of additional private income associated with high school completion are over $100,000 for Canadian high school graduates over the lifetime relative to those that drop out at Grade 10, when the discount rate is 3 percent. Estimates of the total monetary rates of return to society for high school completion are in the order of 17 percent relative to Grade 10 dropouts.

Given that the estimates of the costs of dropping out are high, consideration must be given to the policy interventions that might be effective in lowering the dropout rate – in particular, at what point would the additional costs of intervening offset the private or public benefits of lowering the dropout rate. Presented in this paper are policy options relating to awareness campaigns, raising the legal schooling leaving age, improving literacy, modifying programs for those who have academic difficulties, developing alternative pathways to the labour market, policies directed to families, schools and the community, lowering the minimum wage, and increasing achievement levels for those without high school accreditation.

Sommaire

Ce document résume les données relatives au taux d'abandon des études secondaires au Canada, et présente d'autres renseignements sur les caractéristiques des décrocheurs ainsi que les résultats de recherches sur les coûts potentiels du décrochage. On examine les coûts liés à l'abandon scolaire principalement parce que cela permet de se concentrer sur le potentiel latent des jeunes, qui se traduit par des pertes individuelles et sociales liées au marché et extérieures à celui-ci.

Selon l'Enquête de suivi auprès des sortants, le taux d'abandon (jeunes qui ne fréquentaient plus l'école et qui n'avaient pas reçu de diplôme d'études secondaires ou un équivalent) était de 15 pour cent en 1995, pour les 24 ans. Selon l'Enquête sur la population active le taux d'abandon scolaire des jeunes de 20 à 24 ans a diminué entre 1990 et 1999, passant de 17,1 à 11,9 pour cent.

Les décrocheurs sont plus souvent des jeunes hommes que des jeunes femmes. Les jeunes hommes quittent souvent l'école pour assumer des responsabilités sur le marché du travail et les jeunes femmes, pour assumer des responsabilités familiales. Les décrocheurs vivent souvent seuls, ou avec un parent unique, ou encore ont des parents peu scolarisés, désavantagés sur le plan socio-économique, ou qui ont des attitudes négatives face aux études. Le risque d'abandon scolaire est très élevé chez les jeunes Autochtones. Les décrocheurs obtiennent généralement de mauvaises notes et sont moins susceptibles d'être satisfaits de fréquenter l'école. La sous-performance, la mauvaise conduite et le désengagement par rapport à l'école commencent dès les premières années. Selon les normes internationales, le niveau d'alphabétisation des décrocheurs est très inférieur à celui des diplômés.

Le revenu à temps plein des jeunes hommes qui ont abandonné l'école est quelque peu inférieur à celui des diplômés. Le revenu des jeunes femmes qui ont abandonné l'école est très faible. Les décrocheurs ont un taux d'emploi beaucoup plus bas et un taux de chômage beaucoup plus élevé que ceux des diplômés. Plusieurs des jeunes femmes qui ont abandonné leurs études secondaires ne travaillent pas du tout. Les jeunes qui abandonnent leurs études diminuent leurs chances de réussir plus tard dans la vie parce qu'ils n'ont habituellement ni les compétences ni les diplômes leur permettant d'obtenir de la formation.

Le taux de rendement d'un diplôme d'études secondaires sur le marché privé est très important. Lorsque l'on compare les diplômés canadiens aux personnes qui ont quitté l'école en dixième année, il est de plus de 40 pour cent. L'estimation de la valeur actuelle nette du revenu privé additionnel associé à un diplôme d'études secondaires au Canada, par rapport aux personnes qui ont quitté l'école en dixième année, est de 100 000 dollars sur toute la vie, à un taux d'escompte de 3 pour cent. L'évaluation du taux global de rendement monétaire pour la société d'un diplôme d'études secondaires est de l'ordre de 17 pour cent toujours comparativement aux personnes qui ont abandonné l'école en dixième année.

Comme les estimations des coûts liés au décrochage sont élevées, il faut envisager des interventions stratégiques susceptibles de faire baisser réellement le taux d'abandon scolaire. Il faut tout particulièrement trouver l'équilibre entre les coûts additionnels découlant d'une intervention et les avantages privés ou publics d'une diminution du taux de décrochage. Le document présente des options politiques ayant trait à des campagnes de sensibilisation, l'augmentation de l'âge légal de fin de scolarité, l'amélioration du niveau d'alphabétisation, la

modification des programmes pour les personnes ayant des difficultés scolaires, l'élaboration de nouvelles voies d'accès au marché du travail, des politiques dirigées vers les familles, les écoles et les collectivités, la diminution du salaire minimum et l'amélioration du niveau de compétence de ceux qui n'ont pas de diplôme d'études secondaires.

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1. Introduction

Increased international competition, the emergence of new technologies, and the adoption of alternative human resource management practices may be making it difficult for youth, especially those that do not complete high school, to obtain and hold a job. In most OECD countries today, graduation from secondary school is considered the minimum education threshold level for all youth. In reality, however, large numbers of young adults in all countries, including Canada, leave the formal education system without completing high school and achieving the requisite skill levels, particularly basic literacy skills.

Part of the reason for an ongoing interest in the dropout issue is that it focuses our attention on a potential stock of human capital that some youth are not acquiring when they fail to obtain a high school diploma. Employers in today's competitive global economy are increasingly demanding that workers have suitable skills and knowledge for the workplace. Those that leave school early are less likely to have the requisite knowledge and skills, and are more likely to be excluded from fully participating in the labour market. There are costs to society as well, from lower GDP to higher crime rates. Thus, the costs of dropping out include the overall unrealized potential of youth, which represents calculable financial loss for individuals and society.

One of the objectives of this paper is to present research on the potential costs of dropping out to individuals and to society as a whole. However, it is important to understand the scope of the situation, particularly as it exists among Canadian youth. Thus, another main objective of this paper is to examine how widespread dropping out of high school is in Canada, and how this situation compares to other countries. This information is presented in Chapter 2. It is also important to understand what are the characteristics of dropouts and how they compare with graduates. For example, why do they decide to leave? What is their socio-economic background? What is the process of withdrawal from school and when does it begin? Chapter 3 looks at these issues.

In Chapter 4, the labour market outcomes of dropouts are examined. How do their earnings compare to high school graduates? Are they more likely to be unemployed? What are their chances of improving their skills later in life? In the fifth chapter, some estimates are provided for the rates of return for completing high school for individuals (the private market rates of

return) and for society (the total market/monetary rates of return) and for the net present value of the private income over the lifetime associated with high school completion. Given that the estimates of the costs of dropping out are substantial, Chapter 6 presents some policy options for reducing the dropout rate in Canada. In the Conclusion, the key findings are summarized along with the policy options for reducing the dropout rate.

2. The Incidence of High School Dropouts

2.1 Overview

High school dropouts are those who have left school without graduating. The high school dropout rate is the proportion of dropouts in a specified group at a given point in time. There is no single agreed-upon estimate of the dropout rate and one estimate may be more appropriate than another depending on the focus of the study. Estimates vary in their timeliness and reliability, and in their underlying concepts, such as the age and the definition of high school completion. The typical age of high school completion varies from province to province, and can be as high as 19 in Ontario where high school currently ends at Grade 13 and as low as 16 or 17 in Quebec where high school ends at Grade 11. An example of a dropout rate based on the typical age of completion is one calculated as the complement of the graduation rate: the dropout rate based on this estimate was 25 percent in Canada in 1997.[1] However, some students take longer than is typical to complete high school because they have failed a grade or have interrupted their studies and a dropout rate based on the typical age of completion will not take this into account. A higher age group may be used in the dropout estimate, but then the estimate will not be as timely. Moreover, those who take longer than average to complete high school have different characteristics than those who graduate at the typical age: for example, the average cost of their education is higher. The choice of the age group for the dropout estimate requires a tradeoff among these factors. A dropout estimate also depends on the definition of high school completion. For example, those who have credentials such as vocational certificates may enjoy similar economic benefits as those with a high school diploma do, and so for some analyses may be considered equivalent to graduates. The goal of this chapter is to present some estimates of the dropout rates, and to discuss how these estimates vary through time and across provinces and OECD countries.

2.2 Dropout Rates in Canada and the Provinces

The 1991 School Leavers Survey (SLS) and the 1995 School Leavers Follow-up Survey (SLFS) have shown that a sizeable proportion of Canadian youth leave high school temporarily but

[1] *Education Indicators in Canada: Report of the Pan-Canadian Education Indicators Program 1999.* Statistics Canada and the Council of Ministers of Education, Canada, 2000.

eventually return to school and graduate. Some repeat grades and therefore graduate at an older age than others. Hence, a significant proportion of youth will not graduate from high school at the "typical" age of completion. Estimates of dropout rates will therefore vary substantially depending on the age at which the measure is computed. For example, the SLS reports that in 1991 only 63 percent of 18 to 20 year olds had completed high school: the rest had not graduated because they were still in school or temporarily absent (21 percent) or had left school temporarily or permanently (16 percent). Thus, the 18 to 20 age group does not reflect how many youth have dropped out permanently because it does not take into account that many youth have not yet graduated. That said, measures of dropout rates at the typical age of graduation may be useful if the focus of discussion is how quickly youth are moving through the school system, or what the costs and benefits are of allowing students to complete high school at their own pace. However, because one of the objectives of this paper is to assess the costs of *not completing high school* and not the costs of completing it by a particular age, estimates of dropout rates based on the assumption of "no delay" whatsoever in the education stream would tend to overestimate the targeted population.

Which age group captures those that are most likely to never graduate from high school or from an equivalent program? Estimates for Canada and the provinces using SLS and the SLFS data[2] are presented in Table 1.

In 1991, 18 percent of 20-year-old youth were not in school and had not received a high school graduation certificate, a diploma or its equivalent. Since 20 year olds have on average been out of school for about two years, this estimate would take into account many who had taken longer than the typical time to complete high school. Women are more likely to graduate and tend to complete school at an earlier age. At age 20, 14 percent of 20 year-old women were dropouts compared to 22 percent of men, and fewer women than men were still enrolled in school. The 1995 School Leavers Follow-up Survey of the same group, then 24 years old, shows the proportion of leavers without a degree to have fallen to 15 percent. By 1995, virtually all those

[2] The SLS (1991) was designed to estimate the rate of high school non-completion among young adults and to investigate the factors related to non-completion. The survey examined Canadian youth 18-20 years-old. The objective of the SLFS (1995) was to examine the education, training and labour market experiences beyond high school of the same youth who were then 22-24 years-old. In addition to information collected on personal and family characteristics, respondents were asked about their interest in classes, their academic records, and the importance that their family and friends attached to high school completion.

surveyed had either completed or left school and one quarter of those that had not graduated and were not attending school in 1991 eventually obtained a high school diploma or its equivalent by 1995.[3] Thus, a dropout rate in the order of 15 percent in Canada in 1995 takes into account that many of those who do not graduate at the typical age will eventually graduate, and represents the group that will face the costs of dropping out of high school.

Table 1: High School Dropout Rates for Same Youth in 1991 and 1995, Canada and the Provinces (Percent)

	1991 (20 year-olds)	*1995 (24 year-olds)*
Canada	18	15
Newfoundland	24	19
Prince Edward Island	25	21
Nova Scotia	22	17
New Brunswick	20	16
Quebec	22	19
Ontario	17	14
Manitoba	19	14
Saskatchewan	16	11
Alberta	14	11
British Columbia	16	13

Source: School Leavers Survey and School Leavers Follow-up Survey

In all provinces of Canada, a similar proportion of students complete high school later than the typical age. According to the SLS and the SLFS estimates, a similar fall in the dropout rates occurred in all provinces as older students returned to complete high school. The dropout rate is considerably higher in some provinces than in others. In 1995, the dropout rates varied among provinces by as much as 10 percentage points, with lower rates experienced in Ontario and the western provinces. Quebec and the Atlantic provinces had the highest dropout rates.[4]

The SLS and SLFS also show that a large proportion of those who drop out do so at an early age and at low levels of education. Figures 1 and 2 taken from the 1991 SLS reveal that almost one third drop out with Grade 9 education or less and almost two thirds drop out with Grade 10 or less. Four in ten have dropped out by the time they are 16 years old. The earlier that students

[3] There are no data for the leavers after they reached 24 years of age.

[4] Chapter 3 indicates some of the factors behind this variance across provinces.

drop out, the less knowledge and fewer skills that they will have accumulated. Thus, the high proportion of early dropouts in Canada has important implications for the costs of dropping out of high school. More work needs to be done to determine whether those who drop out at an early age have identifiable characteristics that would merit targeted interventions to keep them in school.

Figure 1: Highest Grade Completed by Dropouts Canada, 1991

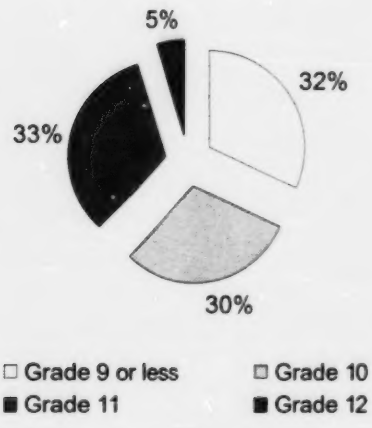
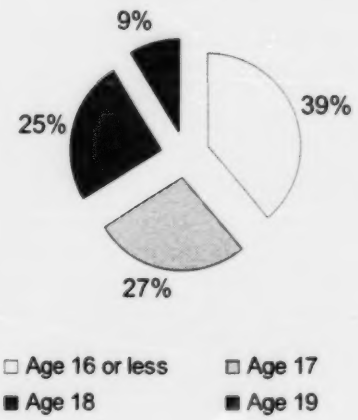


Figure 2: Dropouts' Age at Time of Departure Canada, 1991

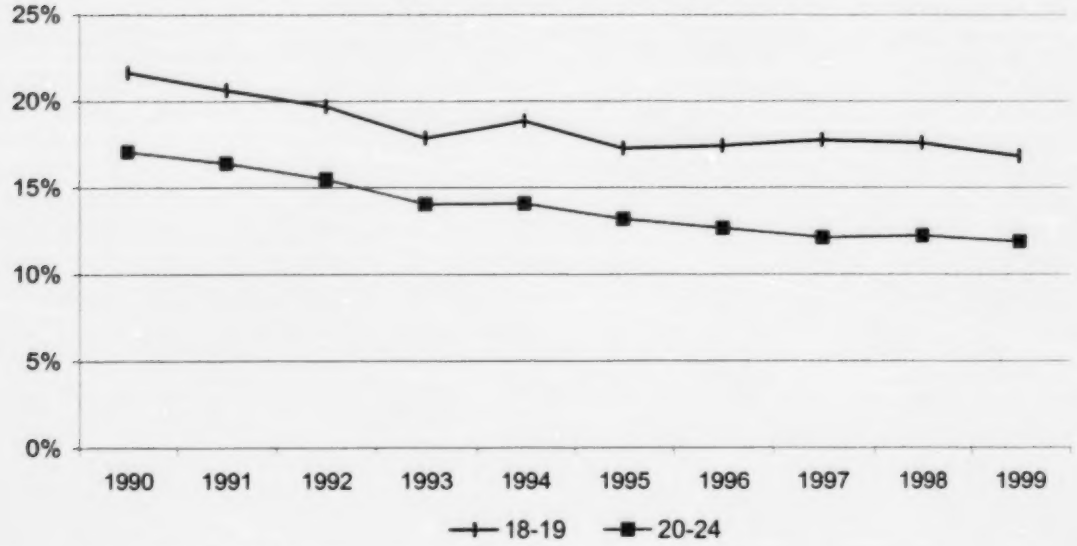


Source: School Leavers Survey

The Labour Force Survey (LFS) data presented in Figure 3 depicts an estimate of dropout rates based on non-completion rates from 1990 to 1999.[5] Rates are shown for two age groups: 18-19 years old and 20-24 years old. Estimates using the LFS are broadly in line with those derived from the SLS and the SLFS. The lower dropout rates for 20 to 24 year olds occur because some in this group may have dropped out when they were younger and subsequently returned to complete their diploma.

[5] The LFS non-completion rate refers to the proportion that is not in school and has not completed high school or a trade program. Only 6 percent of graduates from trade programs did not have a high school degree or the equivalent prior to undertaking their trade program. A disadvantage to using cross-sectional rates for older age groups is that they are not a current indicator of dropout rates. Many in this age group would have graduated, or dropped out, some years earlier. Also, averages over five years (from 20 to 24) may be biased if the cohort size varies over time.

Figure 3: High School Non-Completion Rates for Youth Canada, 1990 to 1999



Source: Statistics Canada LFS data

The LFS dropout rate for 20 to 24 year olds fell from 17.1 percent in 1990 to 11.9 percent in 1997, where it remained for the next two years. The decline was partly related to poor labour market conditions experienced by youth since the 1991 recession – especially those with less than high school education – and partly from the increasing recognition by youth that today's labour market requires high skill levels.[6] The sustained decline in dropout rates through the 1990s suggests that a smaller share of young people will incur the costs of dropping out in the future. Women have had lower dropout rates than men through the 1990s, and the gap has widened somewhat in recent years. In 1990, 14.7 per cent of women 20-24 years old and 19.4 percent of men dropped out. In 1999, 9 percent of women and 14.7 percent of men dropped out.

Canada's dropout rate has been on a steep long-term decline. Special Census tabulations[7] that define dropouts as those who were not in school part time or full time and did not have a secondary school graduation certificate or further training estimate that:

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[6] *Profile of Canadian Youth in the Labour Market, Second Annual Report to the Forum of Labour Market Ministers*, HRDC, 2000.

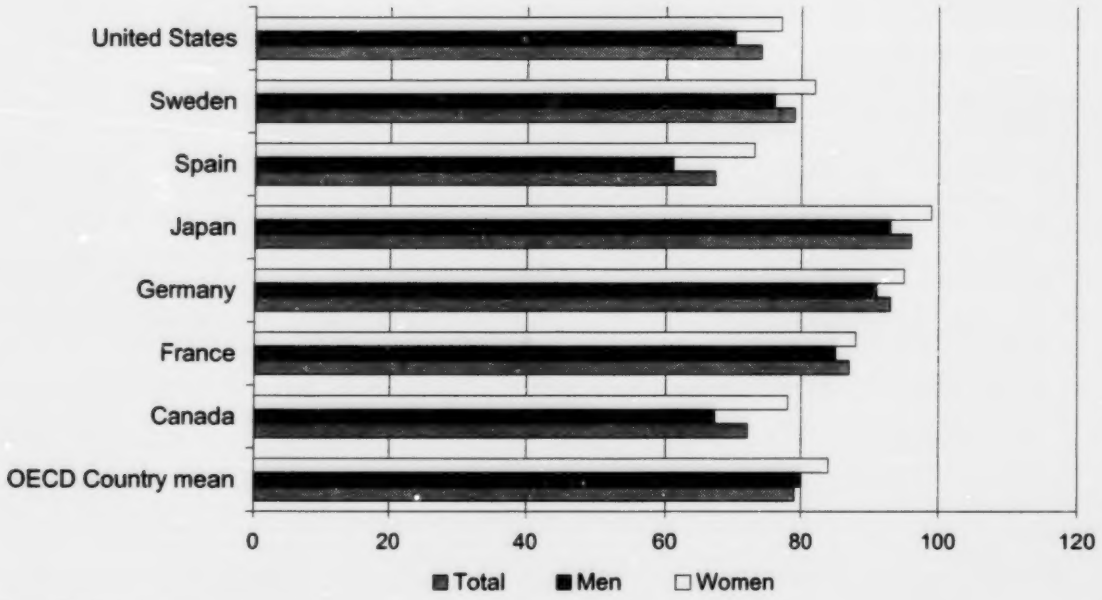
[7] *High School May Not be Enough: An Analysis of Results from the School Leavers Follow-up Survey, 1995.* (1998): Minister of Public Works and Government Services, p.4

- In 1991, 18 percent of 20 year olds and 39 percent of those 30 and older were dropouts.
- In 1981, 29 percent of 20 year olds and 50 percent of those 30 and older were dropouts.
- In 1951, over one-half of the adult population had less than Grade 9 education.

2.3 Canada's Performance Relative to Other OECD Countries

There is a rising demand in Canada for a work force with the level of education and skills that will give Canadian firms the edge to compete globally. Figure 4 shows the ratio of all upper secondary graduates to the population at the typical age of graduation for selected OECD countries in 1998.[8]

Figure 4: Ratio of Upper Secondary Graduates to Total Population at Typical Age of Graduation, 1998 (times 100)



Source: OECD Education Database

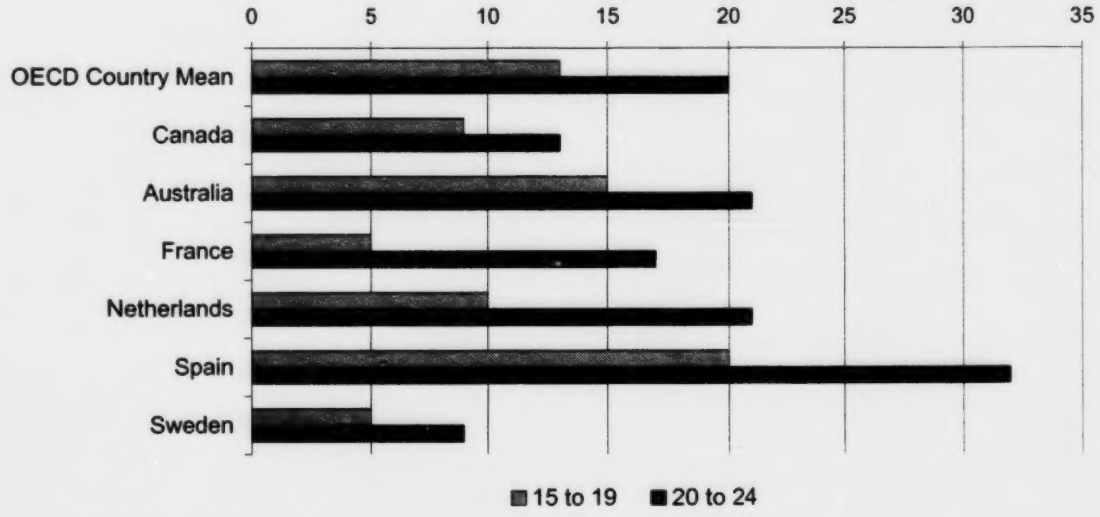
The ratio for Canada (72 percent) is about 7 percentage points below the OECD average of 79 percent. The United States graduation rates are slightly higher than those in Canada. (Note that the difference in graduation rates between women and men is particularly high in Canada.) At

[8] *Education at a Glance: OECD Indicators, 2000 Edition.* The classification "upper secondary" is based on definitions from the International Standard Classification of Education. The number of corresponding years of education ranges from 11-14 years, making comparisons difficult. Furthermore, there may be double counting of those who have completed more than one upper secondary program.

first glance these results suggest that the dropout rates in Canada do not compare favourably with those in other OECD countries. However, the OECD points out that these graduation rates would overestimate dropout rates in Canada as well as in the U.S. because they do not take into account the significant number of people who pass high school equivalency tests. Moreover, in many countries, the final year of high school is the same as the minimum high school leaving age. For example, Britain has a minimum school leaving age of 16, which is the same as the age of the regular secondary program. The OECD also notes that in countries like Canada, Norway, Sweden and the United States, second-chance and safety net mechanisms offer those who have dropped out of school the opportunity subsequently to obtain a diploma.

An OECD measure that more closely corresponds to the dropout rate provided by Canada's SLS and LFS estimates is the proportion of young people who are not enrolled in school and do not have an upper secondary qualification (Figure 5). This is the group most likely to face the costs of dropping out of high school because their lack of qualifications will worsen their employment prospects. Based on this estimate, Canada's dropout rate in 1998 was below the OECD Country Mean rate. In Canada, 13 percent of 20 to 24 year olds were dropouts compared to the OECD country mean of 20 percent. Of the seventeen OECD countries for which data are available, seven countries have a dropout rate exceeding 20 percent for 20-24 year olds.

Figure 5: Percentage of Young People that are Neither Enrolled in nor Have Completed Upper Secondary Education, 1998



Source: OECD Transition Database

2.4 Summary

Many Canadian youth take longer than *is typical to complete high school*, and so estimates of dropout rates based on youth that are somewhat older (e.g., in their early to mid-twenties) provide a more accurate measure of those who will face the costs of not completing high school. Findings from the SLFS reveal that among 24 year-olds, the dropout rate, meaning those who were no longer in school and had not received a high school certificate, diploma or its equivalent (i.e., trades training) was 15 percent in 1995. According to the SLS, the significant majority of dropouts are a long way from completing high school: almost two-thirds of dropouts have only Grade 10 education and two in five are 16 years old or younger. Findings from the Labour Force Survey reveals the dropout rate for 20-24 year olds decreased from 17.1 percent in 1990 to 11.9 percent in 1999. This is a continuation of a long term trend whereby, according to Census data, dropout rates for 20 year olds were 30 percent in the early eighties and over 50 percent in earlier decades. The sustained decline in dropout rates raises some issues: how much dropout rates will continue to fall without further policy intervention; whether the remaining core of dropouts have certain characteristics that will require aggressive (and potentially costly) interventions to keep them in school; and what levels of achievement the remaining core can be expected to reach by staying in school.

OECD data show that most countries have not succeeded in making high school the minimum qualification for those who enter their work force. Canada's rate of upper secondary school completion by the typical age of graduation (72 percent in 1998) is below the OECD average, suggesting a higher than average dropout rate. However, this estimate likely overstates the dropout rate because Canada has a large proportion of students who are not counted as having completed their last year of high school but do have high school accreditation. Another OECD estimate based on the proportion of 20-24 year olds who are neither in school nor qualified at the upper secondary level shows Canada with a lower than average dropout rate: 13 percent in 1998 compared to an OECD country mean of 20 percent. Thus, the estimates suggest, though not conclusively, that Canada's dropout rates are not out of line with international rates.

3. Characteristics of Dropouts

3.1 Overview

Identifying the root causes of dropping out is not an easy task. The factors that influence a person's decision to drop out are complex, interrelated and may have been in play for many years before a person drops out of school.[9] At times the effects of combined factors are cumulative and one cannot be identified as the sole cause. For example, early academic failure may be accompanied by feelings of low self-esteem or stigmatization, leading to continued failure and ultimately to disengagement from school. Or, a factor such as the incidence of low grades may be related to dropping out, but both may have another unidentified root cause, where a policy could be targeted. Furthermore, the actual mechanism through which a factor operates to increase the incidence of dropping out may not be known. For example, low income may be a good predictor of dropping out, but the mechanism may be that the poor diet accompanying low incomes is what limits a young person's ability to succeed in school. Without understanding the mechanism it is difficult to intervene effectively to reduce the incidence of dropping out. And finally, there is no typical dropout. Janosz (1994) has identified four separate categories of those at risk of dropping out – the Maladjusted, the Underachievers, the Disengaged and the Quiets – all of which have different characteristics and underlying causes. Interventions that might help one type would not necessarily help another. Accordingly, this chapter looks at the underlying risk factors from three angles, so as to take into account the interplay among factors and to bring into focus the combined factors that might require policy interventions: the decision to drop out, the dropout's socio-economic background, and the process of withdrawal from school. The results of some studies that attempt to model the multiple factors relating to the decision to drop out are reported at the end of the chapter.

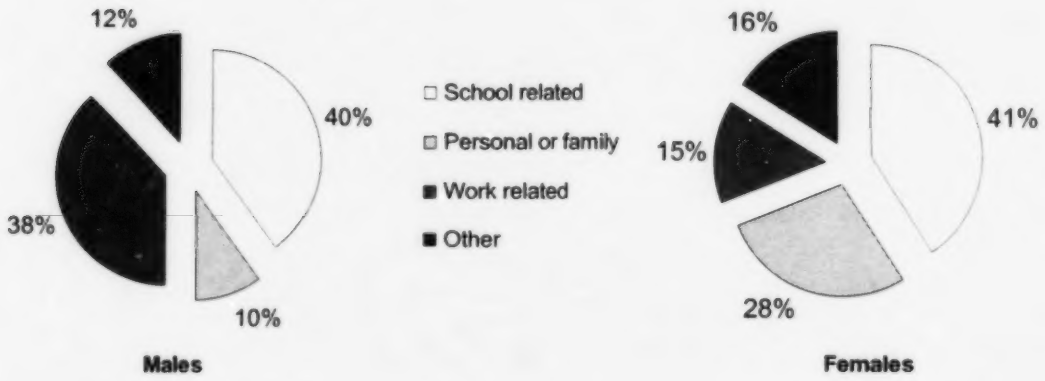
3.2 The Decision to Drop Out

The SLS portrays the reasons that young people give for dropping out as relating either to their perception that school "pushes" them out, or that work reasons or personal or family related reasons "pull" them out (Figure 6). Four in ten male and female dropouts surveyed in the SLS

[9] Audas and Willms (Forthcoming) provide a full discussion of the problems of causality in identifying the characteristics of dropouts.

cite school-related reasons for dropping out. Of the remainder, males and females give very different reasons for leaving school. Forty percent of males drop out for work related reasons (preferring work to school, or having to work/financial reasons), compared to only 15 percent of young women. However, three in ten young women drop out for personal and family reasons, primarily pregnancy and marriage, but also because of drug and alcohol problems, problems at home and medical conditions. This suggests that males and females disengage from school in very different ways. Even so, a significant proportion of both male and female dropouts seem to have been in a position where they were too overloaded with work or family responsibilities to succeed in school.

Figure 6: Most Important Reasons for Leaving



Source: School Leavers Survey

Consider the patterns of working for those who graduate and those who drop out. According to the SLS, the majority of students, both dropouts and graduates, held a job in their final year of school. Among all respondents, working moderate hours (less than 20 hours per week) compared to having no job or working long hours (more than 20 hours per week) was associated with positive school experiences and academic success.[10] Male dropouts, however, were more likely than male graduates to have worked long hours: one-half of dropouts worked more than 20 hours per week, compared to one-third of graduates. Working long hours may be part of a

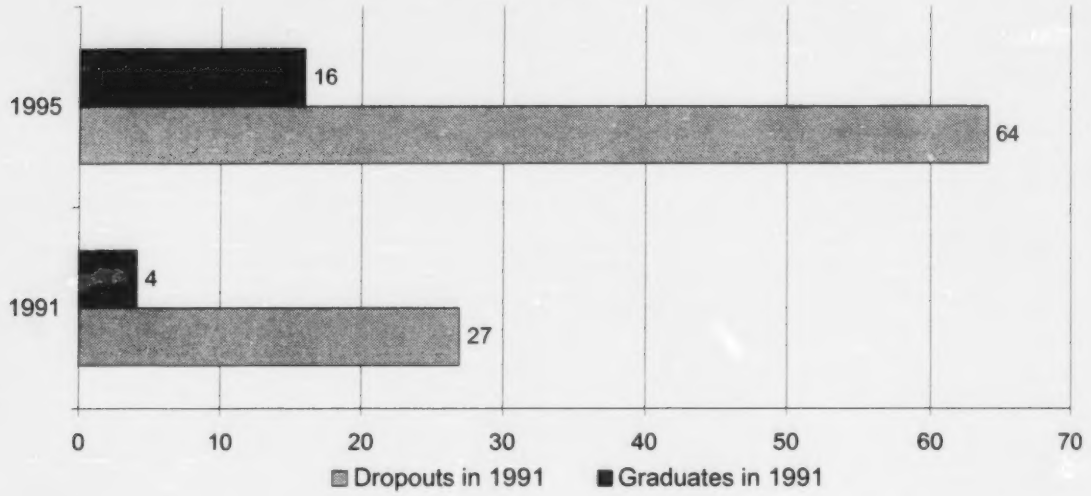
[10] For a formal test and more details see: Dagenais, M.; Montmarquette, C.; Parent, D.; Durocher, B. and Raymond, F.: "Travail pendant les études et abandon scolaire: causes, conséquences et politiques d'intervention." HRDC, Applied Research Branch Research paper R-99-5F. Ottawa, 1999.

process of disengagement from school insofar as it makes success in school more difficult to achieve. Substantial work also confers the concrete short-term benefits of higher income and self-esteem, compared to the less tangible long-term benefits of completing school. Parent (1999) suggests that some male youth may be enticed by the high hourly wages they can earn, which are close to what they would earn if they had completed high school. A study by Beaudry, Lemieux and Parent (1999) reveals that young men 15-19 years old in particular demonstrate a "discouraged worker" effect. They tend to leave school and participate in the labour market when the economy improves and more jobs are available. Montmarquette and Briot (2000) have used SLS and SLFS data to rank the most significant variables in a model of Canadian youth who are at risk of dropping out of high school and find the top two factors to be an increase in the minimum wage and a decline in the unemployment rate, suggesting that youth do indeed make short term decisions to drop out based on current wages and job availability. Another study (Dagenais et al., 1999) reinforces the argument that the higher the minimum wage, the higher the dropout rate. The authors compared the effects of five different minimum hourly wage rates varying from $2.98 to $4.65 between 1987 and 1991 in constant 1986 dollars and concluded that the average number of hours worked and the dropout rate rise when there is an increase in the minimum wage.

For young women, the pattern is quite different. Rather than disengaging from school by moving into the labour force, female dropouts were less likely to participate in the work place at all. Over one-half of female dropouts had no job in their final year, compared to just over one-third of female graduates. Instead of moving into the labour force, many young women quit high school because they were pregnant or had child-rearing responsibilities. As Figure 7 shows, the SLS found that 27 percent of 18-20 year-old female dropouts in 1991 had dependent children compared to 4 percent of female graduates. In contrast, only 7 percent of male dropouts had dependent children. The women who did not have dependent children when they dropped out, had them soon after. Almost two-thirds of women who dropped out in 1991 and who did not return to finish high school (or obtain high school equivalency by other means) had dependent children by 1995. Only 16 percent of 1991 female graduates had children by 1995. This suggests that for young women, there is a strong relationship between them taking on the responsibilities of motherhood and their leaving school. And, many are taking on these

responsibilities as single parents. Four in ten females who dropped out were married in 1995, compared to two thirds of female graduates. Female dropouts were also less likely to be married compared to male dropouts or graduates. The combination of lack of education, single parenthood and withdrawal from the workforce has serious long-term consequences for these dropouts and their children.

Figure 7: Percentage of Female Graduates and Dropouts with Dependent Children, 1991 and 1995



Source: School Leavers Follow-up Survey, 1995

The SLS also shows that a minor share of those that are about to drop out behave in ways that are considered rebellious or deviant. For example, 12 percent of dropouts had a criminal conviction during their last year of school compared to 3 percent of graduates. Dropouts were also somewhat more likely than graduates to consume alcohol on a regular basis (18 percent for dropouts versus 11 percent for graduates); to use "soft" drugs or prescription drugs such as marijuana, hashish or tranquilizers (30 percent for dropouts, 16 percent for graduates); and to use hard drugs (7 percent for dropouts, 2 percent for graduates). Male dropouts tended to use alcohol and drugs more frequently than female dropouts.

Peers

Given the importance of peer networks to teens, it comes as no surprise that peers have a strong influence on the decision to drop out. The SLS shows that less than one-half of dropouts have

friends who think school is important, compared to four-fifths of graduates. Audas and Willms (Forthcoming) cite a study of 14-16 year old Montreal students in which those at risk of dropping out tend to have slightly fewer friends than those likely to graduate and are not well integrated into the school social network. They have more friends who have already dropped out or are working and they also tend to have older friends.

3.3 The Socio-economic Background of Dropouts

Studies have consistently shown that certain features of socio-economic status (SES) and background relating to family and peer structure, education, occupation and attitudes are associated with the incidence of dropping out. It is far less clear what are the pertinent factors of a dropout's socio-economic background that influences the decision to leave school. Socio-economic factors such as income, occupation and attitudes toward education tend to be correlated, yet it is difficult to pinpoint one as the root cause. Even so, the SLS and SLFS have tabulated results of the relative importance of various socio-economic factors associated with a high risk of dropping out (Table 2). Other studies provide some background on how these factors operate in the decision to drop out.

Table 2: Socio-economic Characteristics of Leavers and Graduates
(Percent of total leavers and graduates)

	Leavers	*Graduates*
Live with a single parent or no parents (SLS)	38	17
Parental education is low (SLS)	45	32
Parental education is high (SLS)	9	24
Father works in blue collar job – primary industry, processing (SLS)	55	40
Father is unemployed (SLS)	14	7
Friends think high school is not important (SLFS)	12	2
Friends think high school is very important (SLFS)	45	80

Source: School Leavers Survey and School Leavers Follow-up Survey

Family

Four in ten dropouts lived with a single parent or no parents during their last year of high school. Having a single parent was associated with high dropout rates for young men: one in three young men from lone parent families dropped out compared to one in five young women. One-third of both young men and young women that were not living with parents had dropped out of school. And among young women living without parents, one third had dependent children.

Parental education was also an important factor in predicting who drops out. Forty-five percent of dropouts had parents with low levels of education, compared to thirty-two percent of graduates. Parental education, especially that of mothers, had an impact on the decision to drop out, especially for young women. In two-parent families there were eight times as many female leavers whose mothers had low levels of education as had higher levels of education. It is a vicious circle: women who drop out tend to become single mothers, while single parent families and low parental education are high risk factors for the next generation of dropouts.

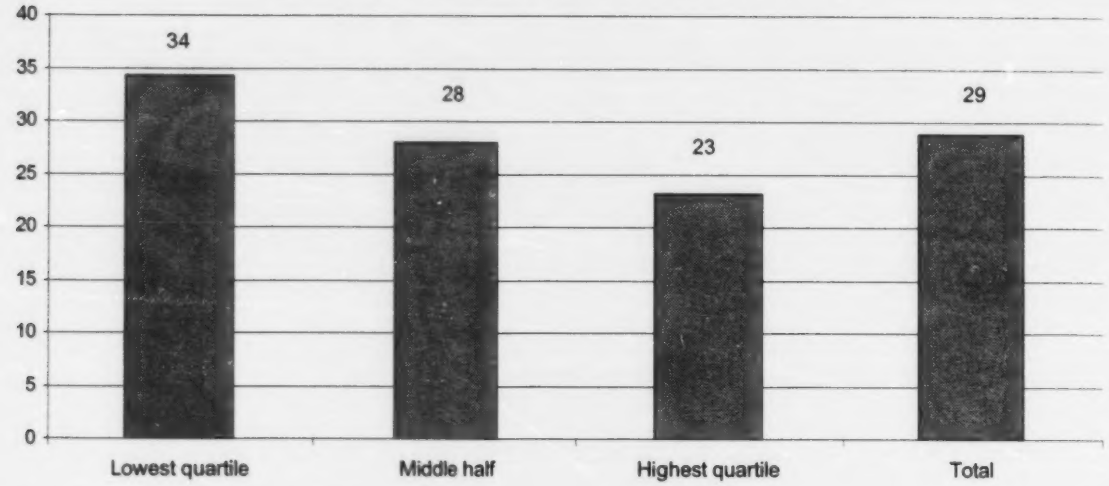
Conjoined with low levels of education may be parents' negative attitudes toward education. Although nine in ten parents in the SLS considered completing high school to be very important, those few who did not consider high school to be important had a strong impact on the decision of their children to drop out. Almost one-half of those who reported that their parents did not consider high school completion very important were dropouts.

Parents' occupations are also associated with the likelihood of their children completing high school. Dropouts were somewhat more likely to have parents employed in blue-collar fields than graduates were. Some have argued that the lower socio-economic status that accompanies lower education levels of parents can limit education opportunities of students. Studies reported in Audas and Willms (Forthcoming) suggest that students from a lower socio-economic status are well aware that they are being streamed into programs and social situations that perpetuate social inequality, and their resignation to their situation may be what causes them to disengage from school.

Results from the 1994 General Social Survey (GSS) reinforce the SLS results that show that low socio-economic status increases the incidence of dropping out. The GSS reports that one-third of youth 18-21 years of age that had lower socio-economic status (SES) family backgrounds had less than high school completion. On the other hand, one-quarter of those in the upper SES quartile had not completed high school (Figure 8).[11]

[11] Compared to the estimates presented in Chapter 2, these figures may overstate the extent of high school non-completion since they do not take into account the fact that individuals may obtain the equivalent of high school completion through other means (e.g., trades training).

Figure 8: Percentage of the Population Aged 18 to 21 with Less than High School Completion by Family Socio-economic Status, Canada, 1994



Source: General Social Survey 1994, Statistics Canada

SLS data also show that graduates were slightly more likely to be from urban areas (77 percent) than dropouts were (73 percent). Immigrants, who tend to live in urban areas, were less likely to have dropped out than Canadian-born young people. Rural youth also tend to leave school at a younger age than urban youth. Four in ten dropouts from rural areas left school before completing Grade 10, compared to three in ten urban youth.

Aboriginal youth, one of the fastest growing segments of the youth population, are burdened with virtually all the socio-economic risk factors listed in the SLS and, as would be expected, have a high incidence of dropping out. Close to half of Aboriginal youth lived with a single parent or with neither parent in their last year of high school, and their parents are likely not to have completed high school. Four times as many Aboriginal youth as the overall population have dependent children. Aboriginal youth are more likely to live in impoverished rural areas. The SLS shows that 40 percent of Aboriginal 18-20 year-olds dropped out compared to 16 percent for the population overall.

3.4 The Process of Withdrawal from School

Recall that four in ten of both male and female dropouts listed school as the main reason they dropped out. Dropouts tend to perceive the school experience more negatively than graduates.

The SLS shows that 41 percent of dropouts did not enjoy school, compared to 10 percent of graduates (Table 3). The factors that seem to contribute to the process of withdrawal from high school are an interrelated combination of progressive disengagement from school, chronic academic underachievement and behavioural problems.

Table 3: Characteristics of Leavers and Graduates Relating to School
(Percent of total leavers and graduates)

	Leavers	*Graduates*
Did not enjoy school (SLFS)	41	10
Found classes not interesting (SLS)	41	21
Did not get along with teachers (SLFS)	15	2
Participated in class less often than most (SLFS)	23	10
Did not participate in any extra-curricular activities (SLFS)	45	27
Skipped classes (SLFS)	75	59
Did not fit in at school (SLFS)	14	5

Source: School Leavers Survey and School Leavers Follow-up Survey

Disengagement

Dropouts are less engaged in school life. Students who begin to disengage from school lose their identification and bonds with school and become more inclined to leave. As discussed earlier, often the final stages of disengagement from school are precipitated by working long hours or teen pregnancy. It may be that early school failure begins a cycle of rejection by students and teachers alike, and the one rejected becomes in turn the one to reject the school environment. Or it may be that a combination of an unsuitable curriculum that seems uninteresting and irrelevant to some and lack of attention from teachers makes it difficult for some students to connect with educational goals. Four in ten dropouts reported they found their classes not interesting, twice the proportion of graduates. Male leavers in particular found their classes boring. One in four dropouts believed they participated in class less often than most. Only one in ten graduates felt this way. Forty-five percent of dropouts did not participate in extra-curricular activities, almost twice the proportion of graduates. Dropouts were also more likely to skip classes, to not get along with their teachers and to feel that they did not fit in.

Underachievement and behavior

The interrelationship of academic performance and behaviour plays a significant role in the decision to leave school. The SLS reveals that four in ten dropouts reported they had mainly A or B grades, while twice the proportion of graduates reported similar grades. Over half of dropouts had grades of C or below, compared to one in five graduates (Table 4). Also, more dropouts reported difficulty with core subjects such as mathematics, science, and English or French. Leavers were the most likely to have failed math and the most pronounced difference in performance relative to graduates was in English and French, the subjects that teach reading literacy. It is worth noting, however, that most students who dropped out were not failing and had the necessary grades to continue in school.

Table 4: School Achievement of Leavers and Graduates Relating to School (Percent of total leavers and graduates)

		Leavers	*Graduates*
Grade averages Cs, Ds and Fs (SLS)		53	20
Failed math	males	31	19
	females	38	19
Failes science	males	17	10
	females	28	9
Failed English/French	males	29	7
	females	19	3
Failed a grade in elementary school	males	41	11
	females	27	5

Source: School Leavers Survey

Those with good grades are more likely to graduate from school, but completing school also seems to depend on not allowing one's dissatisfaction with school to compromise academic performance. The SLS shows that graduates who did not enjoy school were still likely to achieve good grades, whereas leavers who did not enjoy school were much less likely to achieve good grades.

Early academic failure is a strong predictor of dropping out. Thirty-six percent of dropouts had failed an elementary school grade compared with eight percent of graduates. Male dropouts had a higher chance of having failed a grade in elementary school than female dropouts, but female dropouts were five times as likely as female graduates to have failed a grade. Audas and Willms

(Forthcoming) cite a variety of studies that relate early performance to misbehaviour and ultimately to disengagement from school. Children who were *underachievers*, that is, who had a low achievement-to-intelligence ratio in early grades, were more likely to drop out, suggesting that in early grades there is a relationship between academic performance, behaviour and engagement in school, despite the potential to learn. Those in early grades who exhibit aggressive behaviour and absenteeism also have a higher probability of dropping out. These behaviours may be symptomatic of frustration and low self-esteem: children may act out because they have undiagnosed learning problems. West (1991) found a series of predictors based on academic underachievement through the years that identified students at risk of dropping out, from being behind in a grade level, not reading at the standard grade level, enrollment in general courses (rather than college or vocational preparatory courses) and generally lower school achievement.

Disabled youth often possess the combined features of low academic performance, low self-esteem and disengagement from school. Research conducted in conjunction with the School Leavers Survey revealed that some physically disabled youth mentioned that they felt alienated at school and were having a difficult time fitting in.[12]

Illiteracy and dropping out

One striking feature of those who drop out of high school is that they have very low levels of literacy compared to graduates and also compared to dropouts in other countries. Students who cannot read well fall farther and farther behind in school as their curriculum becomes more challenging, leading some to disengage and ultimately to drop out. Figure 9 outlines mean literacy scores from the International Adult Literacy Survey for young people 20-29 years old that have and have not completed upper secondary school.[13] Among the OECD countries for which data are available, the mean literacy scores for those without high school are significantly lower than the scores attained by graduates. While scores for graduates are similar across countries, Canada's score for those who drop out is far lower than for the other countries.

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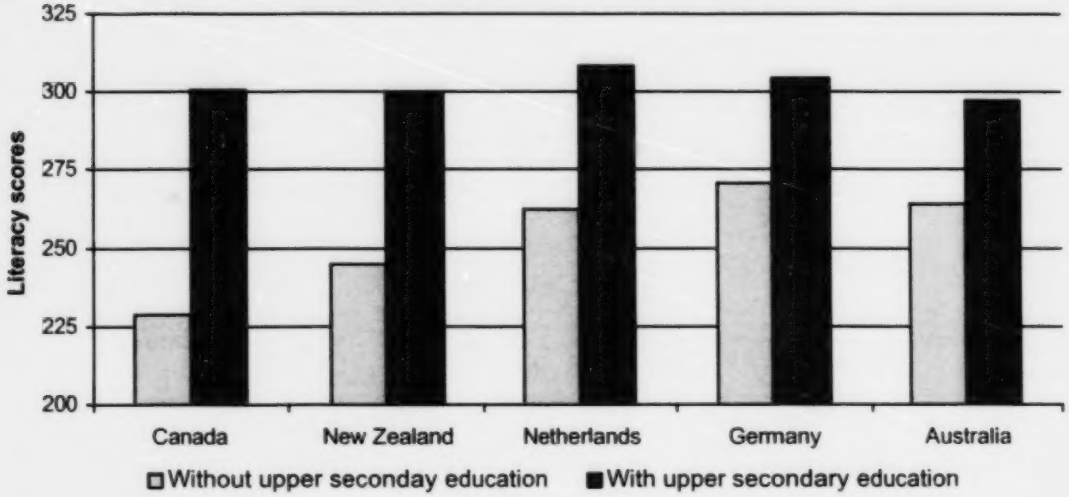
[12] Price Waterhouse, "Qualitative Research Related to the School Leavers Questionnaire," Final report, October 25, 1990.

[13] In Canada, graduation from upper secondary school typically corresponds to the completion of Grade 12.

Indeed, they are so low, that Canada's overall literacy rate is among the lowest of OECD countries despite Canada having one of the highest proportions of post-secondary graduates.

Figure 9: Mean Literacy Scores (prose) of Young People Aged 20-29 with and without Upper Secondary Graduation Selected Countries, 1994-1995



Source: International Adult Literacy Survey, 1994-1995

This finding has potentially profound implications for the performance of dropouts in the workplace. Because their literacy rates are low, dropouts would be expected to have far lower workplace skills than those with high school education. Given the importance that employers attach to strong transferable skills in the knowledge-based economy today, those with lower literacy levels are at greater risk of not being successfully integrated into the labour market, and so face a significant cost of dropping out over the lifetime.

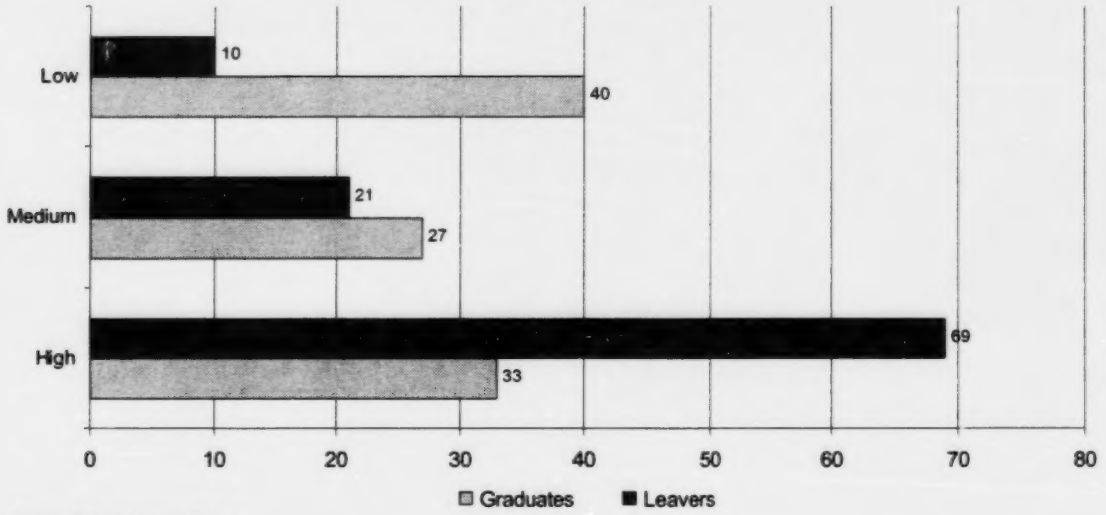
What causes the poor literacy performance of Canadian dropouts? Canada has a high proportion of youth who drop out at an early age, but so do other countries. Thus, evidence does not support the idea that Canadian dropouts have a lower level of education than other countries. If the elementary schools and the first few years of secondary education promote less literacy acquisition in Canada relative to other countries, then we need to know why, where the problems lie, whether it be the curriculum, the teaching quality, class size, or lack of remedial programs, and how much it will cost to fix them. Improving standards of literacy may have important

implications for keeping children in school, improving the quality and productivity of our workforce and ultimately the living standards and well-being of all Canadians.

3.5 Combined Factors

A full consideration of the factors associated with dropping out requires a modeling of the relationships among the factors to determine how well they predict the incidence of dropping out. Figure 10 shows a simple grouping of risk factors collected in the 1991 SLS and the distribution of dropouts and graduates according to level of risk.[14]

Figure 10: Percentage Distribution of Dropouts and Graduates by Level of Risk, Canada



Source: School Leavers Survey

Those who are "high risk" have at least one risk factor that is associated with dropout rates of over 20 percent. Over two-thirds of dropouts have high-risk characteristics and only one in ten dropouts have "low risk" characteristics. The dropout rate with the high-risk group is 27 percent,

[14] Three risk groupings were constructed as part of the SLS analysis. The "high risk" group consists of those in one or more of the following categories: with dependent children; never-married; with disabilities; living with neither parent; lone-parent families where the parent had less than post-secondary education; two-parent families where the father was not working and the mother either was not working or had a pink or blue collar job; two-parent families where both parents were blue collar workers; or two-parent families where the father's education was unknown. All of these had leaver rates of at least 20%. The "low risk" group includes those from two-parent families where both parents had at least graduated from high school, and students from two-parent families in which the father held a managerial, professional or technical occupation. The "medium risk" group includes families headed by a well-educated lone parent or from two-parent families where at least one parent did not complete high school.

compared to 16 percent overall. However, one-third of those in the high risk group still did graduate. The high risk youth are most likely to have been living with a single parent or no parents in the final year of high school, have dependent children, and/or come from lower socio-economic backgrounds

This type of analysis has a rather simple definition of risk, and could be improved by adopting a ranking that makes a finer distinction between one risk and many, and that has a more graduated weighting of the various risks. It could also be taken further by identifying which features serve to counteract the risk, such as a positive school environment, parental attitudes, peer influences or personal characteristics of students.[15]

Montmarquette and Briot (2000) have extended the analysis of SLS and SLFS data by examining the relationship between multiple risk factors and the likelihood of dropping out of high school. They used their estimation model to identify the top nine risk factors in order of their significance:

1. An increase in the minimum wage
2. A decline in the unemployment rate
3. Going to school in a province where the minimum legal age to leave school is 15 years old
4. Going to a public school
5. Being male
6. Having parents whose level of education is at or below high school level
7. Having changed schools often
8. Having low grades
9. Having worked more than 30 hours per week or having not worked at all in the last year of school

A study by Janosc, LeBlanc, Boulerice and Tremblay (1994) combined multiple predictors of dropping out relating to families, peers, schools and performance. They ranked grade retention,

[15] A new survey, the Youth in Transition Survey (YITS), initiated by Human Resources Development Canada, and carried out by Statistics Canada will examine some of these factors. Among other things, this survey will help to enhance our understanding of the factors related to dropping out of high school.

disrespect of authority and participation in passive activities as the most important predictors of dropping out, and concluded that family and school factors were not strong independent predictors.

In these three studies, the multiple risk factors have very different rankings. The SLS risk analysis ranks social and family considerations the highest. Montmarquette and Briot rank labour market conditions and minimum age legislation as the highest. Janosc et al. rank underachievement, behaviour and disengagement as the highest. This tells us that different model specifications produce very different results, probably because of the causality problems discussed earlier.

Audas and Willms (Forthcoming) have done some promising work on a *Basic Life Course Model,* which explicitly lays out the causal relationships between the various factors associated with dropping out. First they group three factors, Academic Achievement, Behaviour and Engagement (A-B-E) as an interdependent cluster. They combine an A-B-E specification into a multilevel framework so that the A-B-E interplay can be examined while controlling for other factors. At the foundation of the multilevel framework are factors that are essentially beyond the control of policy makers – the family's socio-economic status (parents' incomes, education and occupation) and whether the student is male or female. At the next level are the Family, School, Neighborhood and Community variables (F-S-N-C) that can potentially be influenced by policy decisions. The work of Audas and Willms offers three important insights into the causes and prevention of dropping out.

- The interplay of academic achievement, behaviour and engagement in school operate from the time that a child starts school and determine the long process of "fading out" of school. Understanding these factors requires controlling for the effects of socio-economic as well as other family, school and community related variables.
- Socio-economic factors strongly influence the decision to drop out but their mechanisms are unclear and may not provide solid policy levers to reduce the incidence of dropping out.
- Identifying the factors sensitive to policy levers will provide important information on how governments can most effectively reduce the incidence of dropping out.

3.6 Summary

This chapter investigated those who might be at risk of dropping out and what their characteristics are. Policy makers need to identify those at risk and understand why they drop out if they are to intervene effectively to reduce the number of youth who do so. There are problems in identifying and estimating the root causes, and so it is useful to consider three categories of underlying factors.

The decision to drop out. Four in ten young men and women mentioned their school experience as the reason they dropped out. The rest tend to disengage from school by taking on more workplace or family responsibilities that ultimately jeopardize their chances of completing high school. Four in ten men said they dropped out because of their workplace responsibilities. Male dropouts tend to work long hours in their final year at school and to respond to the "discouraged worker" effect, dropping out when wages are high and the economy is strong. In 1991, three in ten women said they dropped out for personal or family reasons, particularly because they had dependent children. Four years later, two-thirds of women dropouts had dependent children, and a significant proportion of these were single mothers. Thus, the decision to drop out is short-sighted for both men and women insofar as it does not give weight to the long-term economic benefits of staying in school and the difficulties of single parenthood. The costs of dropping out would vary for men and women because male dropouts are more likely to move immediately into the workplace, whereas women dropouts are less likely to be working at all.

Socio-economic factors. The main socio-economic factors that predict dropping out are living with a single parent or no parents during the last year of high school (more likely to influence males), having parents with low levels of education (more likely to influence females) and associated factors such as parents working in a blue collar job, and negative school attitudes by family and peers. Socio-economic factors are interrelated and it is difficult to get to the core of what is discouraging those at risk from completing school. Possibly the same socio-economic factors that are associated with dropping out would also be associated with lack of success in the labour market and thus have independent negative effects on labour market experiences. This should be borne in mind when considering the costs of dropping out of high school.

The process of withdrawal from school. The interaction of three factors – disengagement from school, underachievement and misbehaviour – are significant predictors of dropping out. Problems begin early in school and cumulate over time. Indeed, these three factors are likely to have an impact on the performance of dropouts throughout their working life, in addition to having an impact on the incidence of dropping out. One troublesome feature of Canadian dropouts is that they have very low levels of literacy compared to graduates and also compared to international standards. Low levels of literacy are a serious problem in that they not only contribute to dropping out; they put those who drop out at a serious disadvantage in the workplace, and may discourage dropouts from returning to complete school. Moreover, poor literacy seriously limits the chances of dropouts to improve their skills through adult education and training.

4. Labour Market Outcomes of High School Dropouts and Graduates

4.1 Overview

This chapter takes a look at various Canadian data sources to document the extent to which dropouts and graduates differ in terms of their earnings, employment status, and other employment-related factors. It is worth noting at the outset that dropouts would not necessarily have achieved the same labour market outcomes as graduates if they simply were given more schooling. The factors that make it difficult for them to complete high school such as their intellectual ability, low self-esteem, lack of social skills or lack of foresight might also inhibit performance in the workplace. For example, Hartog (1999) observes that about a third of the returns to investment in human capital are actually returns to higher intellectual capacity, while social skills and personality factors can also affect earnings. That said, he concludes that the number of years in school is a far more significant determinant than innate ability in predicting future earnings.[16] It is also worth noting that four in five high school graduates will continue their education and can potentially attain even better labour market outcomes than those who work after high school. A large part of the payoff to high school is that it is the route to a post-secondary education. The marginal benefit of post-secondary education may be significant, in some cases even more significant than that of a high school diploma, but without a high school diploma, the post-secondary option would not be available.

4.2 Earnings

There is a modest gap in full-time earnings between those who have some high school and those who have completed high school. Figure 11 shows the ratio of full-time earnings between 1989 and 1997 of 30-39 year olds with less than a high school education compared to high school graduates.[17] Dropouts with some high school earn 90 to 100 percent on average of what graduates earn. The gap widens for dropouts with less than high school education: they earn 70

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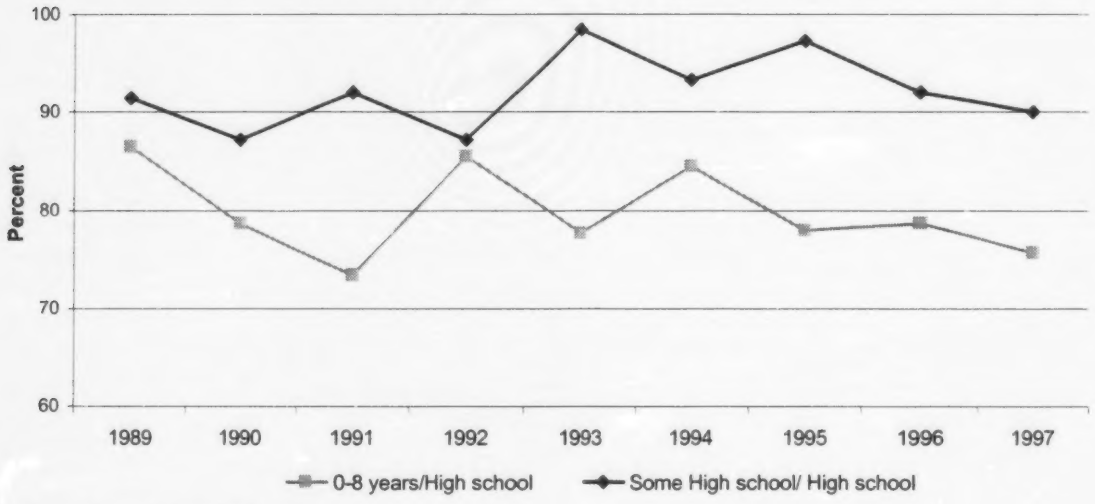
16 *Behind the veil of human capital*, Joop Hartog, University of Amsterdam, published in the OECD Observer January 1999.

17 The 30-39 years old age group was chosen because it allows most individuals a sufficient number of years in the labour market before examining their income. In particular, for those that have continued on into post-secondary education (and especially university) it is important to examine outcomes after individuals have been working for several years.

to 85 percent of what graduates earn. The real payoff in full-time earnings comes for those with a university degree: male university graduates 20-29 years old earned over 30 percent more earnings than high school graduates between 1989 and 1997, and female university graduates earned about 50 percent more than their female counterparts.[18] One might have expected that the gap in earnings between high school graduates and dropouts to have been greater. It will be shown that the payoff does not lie so much in terms of full-time earnings, but in the ability to sustain these full-time earnings by maintaining stable, long-term full-time employment. Moreover, the significant earnings advantage that comes with a university education will only be available to those who first have obtained a high school diploma.

Figure 11: Ratio of Full-Time Earnings, High School Non-Completers to Completers, Workers 30-39 years-old, Canada, 1989-1997



Source: Survey of Consumer Finances

Young male dropouts, two-thirds of whom work in blue-collar occupations, can make relatively good weekly wages. The SLFS calculates the median weekly wage in 1995 for male dropouts to be $400 per week, only 7 percent lower than for male graduates (Table 5). The weekly wages offered to males at risk of dropping out must seem enticing: recall that a large portion of male dropouts said they dropped out for work-related reasons. They may fail to realize that they will not sustain these high wages full-year, full-time to the same degree that high school graduates will.

[18] See *Profile of Canadian Youth in the Labour Market* (2000). Data source: Survey of Consumer Finances, Statistics Canada.

Table 5: Weekly Wages of Dropouts and Graduates, 1995				
	Graduates		*Leavers*	
	Men	Women	Men	Women
25th percentile	$318	$228	$308	$200
Median	$430	$336	$400	$260
75th percentile	$615	$448	$560	$300

Source: School Leavers Follow-up Survey, 1995

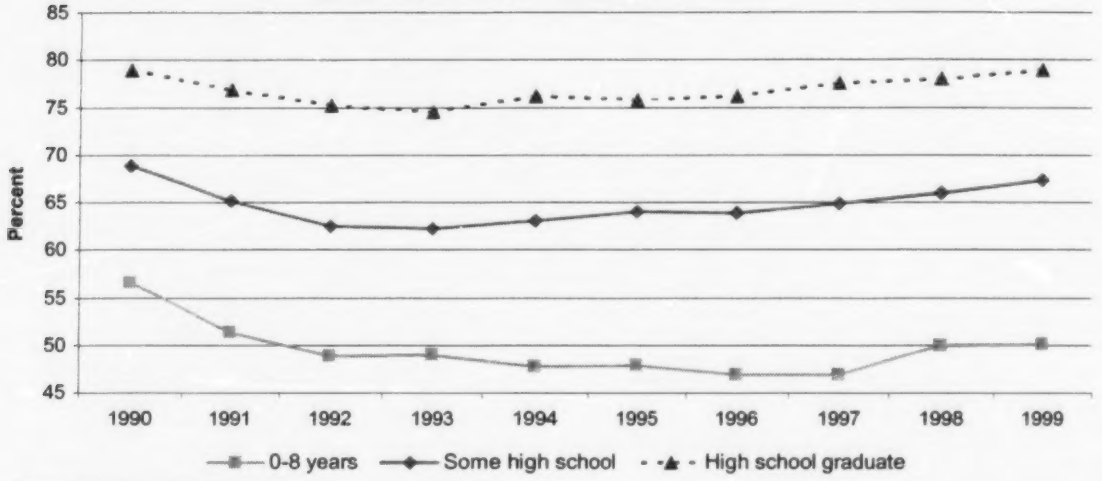
Female dropouts who work tend to be in low paying clerical and sales and service jobs. They earned only a median of $260 per week in 1995, 20 percent less than female graduates. Moreover, women who dropped out had far lower weekly wages than male dropouts did. Indeed, the gap between men's wages and women's wages is widest for those with the lowest levels of education. Comparing their earnings, the highest paid women dropouts earn the same as the lowest paid male dropouts. The range of weekly earnings for female dropouts is also narrower than for men. Overall, the poor wage prospects for women dropouts may explain in part why a larger portion of young women than young men complete high school.

The OECD has estimated that earnings of men and women with less than upper secondary educational attainment are between 60 to 90 percent of those for persons who have completed upper secondary education (OECD, 1997). In general, men with lower levels of education fare slightly better than women relative to upper secondary completers of the same gender in OECD countries. This pattern is also found in Canada but is more pronounced.

4.3 Employment Status

High school dropouts are much less likely to be employed than those that graduate. Figure 12 presents the employment rates for 25-44 year-olds between 1990 and 1999 by level of education. The employment rate of individuals with some high school is 10 to 15 percentage points lower than that of high school graduates. Dropouts with no high school education have employment rates 20 to 30 percentage points below those of high school graduates. As of 1999, only two-thirds of dropouts with some high school were employed, while only one-half of dropouts with no high school were employed. Women who dropped out had especially low employment rates in 1999 (20 percentage points below male dropouts) and participation rates (23 percentage points below male dropouts).

Figure 12: Employment Rates by Educational Attainment, 25-44 Age Group, Canada, 1990-1999



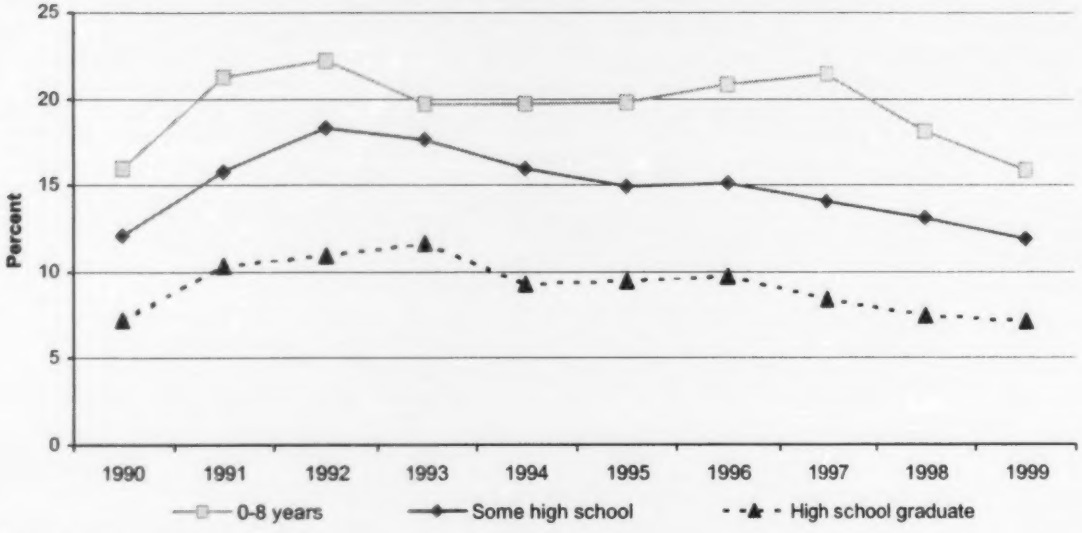
Source: The Labour Force Survey

The employment gap between high school dropouts and graduates widened during the 1990s. The employment rates of dropouts deteriorated sharply during the 1991 recession and recovered more slowly than those of high school graduates. Young dropouts especially saw their employment prospects deteriorate in the 1990s. In 1999, the employment rate for 15-24 year old dropouts was 50 percent, 5 percentage points below where it stood in 1990.

Male and female high school graduates have dramatically lower unemployment rates than dropouts do. Figures 13a and 13b present the unemployment rates in the 1990s by educational attainment for 25 to 44 year old males and females.

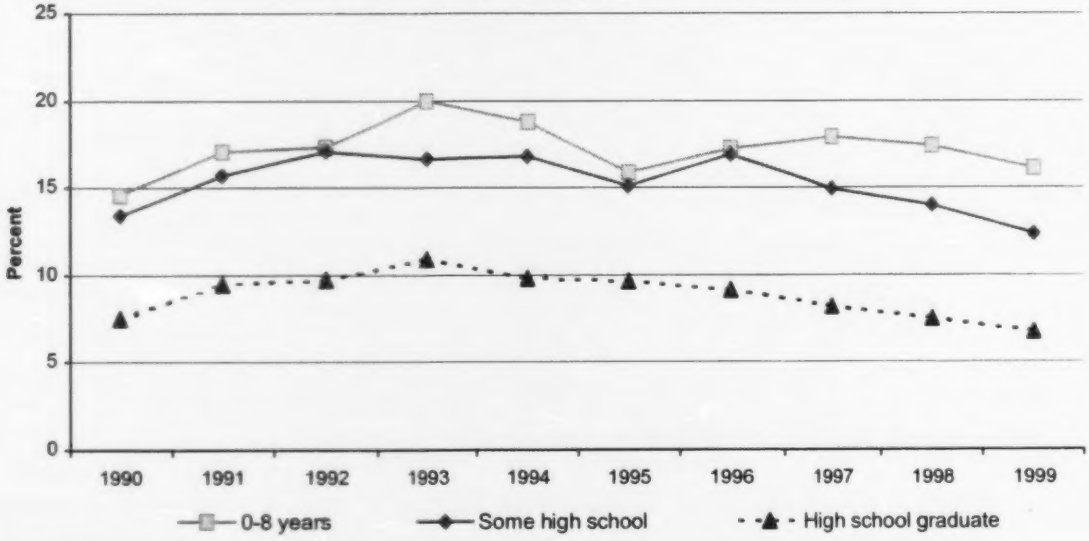
Male and female high school graduates had average unemployment rates of 9 percent in the 1990s, in the same range as those with some post-secondary education or a post-secondary certificate. The average unemployment rate for dropouts with some high school was 15 percent for both males and females. For dropouts with less than high school education the average unemployment rate was in the 20 percent range, about double that of high school graduates. Those with a high school diploma who continued on to university had even better employment prospects: university graduates had unemployment rates in the 5 percent range.

Figure 13a: Unemployment Rates for Males by Educational Attainment, 25-44 Age Group, Canada, 1990-1999



Source: The Labour Force Survey

Figure 13b: Unemployment Rates for Females by Educational Attainment, 25-44 Age Group, Canada, 1990-1999



Source: The Labour Force Survey

Recall that those who drop out have very low literacy skills. The International Adult Literacy Survey has studied the relationship between inadequate literacy skills and labour market potential

and found that in Canada the unemployment rate for young adults with poor basic literacy skills is two times that of young adults with high literacy skills.[19]

4.4 Early Labour Market Experiences

Young people often make a rocky transition from school to work. It takes them time to match their skills to their jobs and to settle into permanent employment. Table 6 outlines the proportion of time that dropouts and graduates, without additional education and training, spent working in a reference job (a job with at least 20 hours of work per week and held for a period of at least six consecutive months) since leaving high school.[20]

Table 6: Time Spent Working in Reference Jobs, Dropouts and Graduates Without Further Education and Training, 1995 (Percent)

	Graduates		*Leavers*	
	Men	Women	Men	Women
25th percentile	25	17	21	0
Median	58	54	46	10
75th percentile	95	81	80	40

Source: School Leavers Follow-up Survey

Although male graduates spent more time than dropouts working in reference jobs when they started in the workforce, the difference was not overly large: both groups switched jobs frequently. Male graduates spent a median of 58 percent of their time in reference jobs whereas male dropouts spent 46 percent in 1995. However, the median would likely increase for graduates after 1995. First of all, graduates would not have been working as long as dropouts in 1995, and so would be at an earlier stage in their transition from school to work. After 1995, graduates would have had more time to make the transition and so their employment history would stabilize. Moreover, in recent years employment prospects for youth, which were poor after the 1991 recession and during the subsequent slow recovery, showed a more substantial improvement for high school graduates than for dropouts. Thus, the SLS graduates would likely show a more stable working pattern than dropouts if they were surveyed today.

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[19] See Karen Kovacs, "Preventing Failure at School", *OECD Observer*, 1998

[20] For more details see Chapter 7, *High School May Not Be Enough: An Analysis of Results from the School Leavers Follow-up Survey, 1995*, HRDC (1998).

The early work experiences of female dropouts contrasts markedly from those of female graduates. Female graduates spent a median 46 percent of their time working in reference jobs, whereas female dropouts spent a mere 10 percent of their time. Almost one-half of women dropouts never had a reference job at all.

4.5 The *Catch-22* of Further Education and Training

Dropouts – the very people most in need of further education and training – are the least likely to pursue it. The SLFS indicates that while four out of five graduates had taken education or training towards a degree, diploma or certificate after completing high school, only one in four dropouts had pursued further education or training. Many dropouts face a Catch-22 situation whereby they lack the skills that would have come from completing high school, but their lack of high school credentials effectively bars them from improving their skills through further training, and from pursuing the pathway that offers the greatest payoff in term of higher earnings and better employment – a university education.

The minority of dropouts who do access further education and training are predominantly males. They enroll mainly in trade, vocational and apprenticeship programs. They may have access to these types of programs because they work mainly in blue-collar occupations that often require further training or upgrading. Female dropouts are more likely to have dependent children and not to be working at all. Those that do, tend to work in clerical, sales or service jobs, and would not have the same access to training as blue-collar workers would.

High school dropouts and high school graduates who did not further their education and training together accounted for almost 30 percent of those in the 22-24 year old age group surveyed in the SLFS. Because they are not supplementing their relatively low levels of education with further education or training, they face unfavorable long-term employment prospects.

The Adult Education and Training Survey conducted in 1998 supports the SLFS findings.[21] In this survey, 28 percent of all adults indicated that they took part in education and training activities in 1997. Close to 40 percent of adults under 35 years of age did so that year. About

[21] See *The Daily*, Friday, June 18, 1999, Statistics Canada.

one-half of those with a university degree, one quarter of those with a high school diploma, and one in ten high school dropouts took part in further education and training.

4.6 Summary

High school dropouts have worse labour market outcomes than graduates. Their full-time earnings are somewhat lower than high school graduates that directly enter the labour force, and considerably lower than high school graduates that also have a university degree. The gap in weekly wages between male dropouts and graduates is not high. Yet for women dropouts, weekly wages are much lower, generally well below the worst paid male dropouts. Dropouts have much worse employment outcomes than graduates, and their employment rates are 10 to 30 percentage points below those of graduates. Both dropouts and graduates often make a rough transition from school to work, frequently changing jobs or being out of work. Many female dropouts do not make the transition at all. It is not clear the extent to which the diploma itself confers improved labour market outcomes; to some extent, the factors that are necessary to complete high school, such as innate ability, social skills and confidence, are also necessary to succeed in the workplace. One thing is clear, however. A serious consequence of dropping out is that it not only impedes labour market success, it cuts off future possibilities to improve labour market outcomes because dropouts do not have the skills or credentials to pursue further education and training.

5. Estimates of the Costs of Dropping Out of High School

5.1 Overview

Over the past forty years, there has been considerable economic analysis to estimate the net benefits of education. This analysis has usually taken a human capital approach in which the costs of education are treated as investment expenditures, and additional earnings are treated as the benefits to the investment. Much of this research has focused on the differences between high school graduates and university or community college graduates, while little research has been directed at estimating the differences between those who complete and those who drop out of high school. This chapter presents some work on market-based rates of return to a high school education for individuals and for society.

5.2 Social Costs and Benefits of Education

A review of the literature reveals that there are many costs and benefits associated with education. Haveman and Wolfe (1984) and Wolfe (2000) prepared a comprehensive catalogue of potential market and non-market impacts of education including, among other things, individual market productivity, intergenerational effects from parents to children, fertility, health and crime (see Appendix A). Chaplin and Lerman (1997) identify many of the same factors, although they also include the costs of information dissemination.

In a series of papers commissioned by the U.S. Department of Education (Behrman and Stacey, 1997) it was concluded that reducing the dropout rate would likely lead to an improvement in health, a reduction in poverty and associated problems in family structure, although it was noted that existing research does not provide a basis for determining estimates of the market value associated with these effects. The authors also concluded that it is not clear that reducing the number of dropouts would generate significant social benefits in terms of crime reduction.

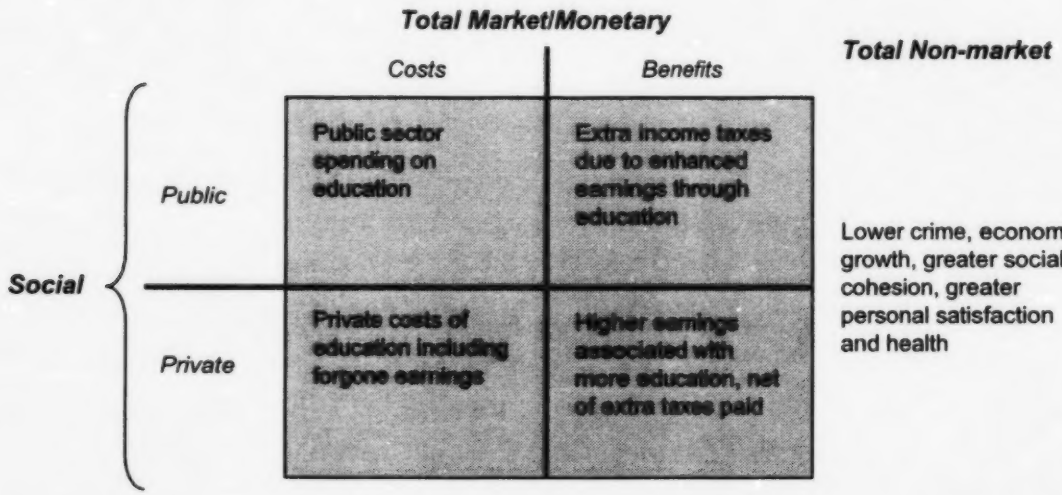
In practice, it is difficult to fully identify the causal impact of education on various outcomes. Stacey argues that this is 'because education reflects choices of individuals, families, communities, and policy makers. These choices are made in the presence of important factors that are not measured in most data sets used to analyze the effects of education' (Stacey, 1998, p. 61).

The net benefits of investment in education can be estimated from the point of view of the individual or society. Much research has focused on the former, which is not surprising since the costs and benefits to the individual are easier to measure than those to society. Reflecting this, the OECD has noted that:

> while average benefits to individuals in terms of increased earnings and employment prospects are often clear, it is not always as easy to quantify benefits to society – which are highly relevant given that the cost of the investment is often borne in large part by public money (OECD, 1998b, p. 53).

Figure 14 illustrates that total costs and benefits of education consist of market and non-market factors. Total market (monetary) costs and benefits within the shaded rectangle can be divided into public and private elements. Public market costs include spending on education. Private market costs include tuition and forgone earnings during periods of education. Market benefits include a private component, which is higher earnings associated with greater educational attainment, and a public component, which is the part of higher earnings that accrues in the public sector through taxation. The non-market benefits outside the shaded rectangle refer to benefits that accrue to individuals and to society, besides those that are acquired through higher earnings and taxation. They are difficult to quantify. Potential non-market benefits include greater personal satisfaction, better health for individuals, lower crime and greater social cohesion.

Figure 14: Costs and Benefits of Human Capital Investment


Total Market/Monetary
Costs
Benefits
Total Non-market
Public
Private
Social
Public sector spending on education
Extra income taxes due to enhanced earnings through education
Private costs of education including forgone earnings
Higher earnings associated with more education, net of extra taxes paid
Lower crime, economic growth, greater social cohesion, greater personal satisfaction and health

Source: Adapted from Human Capital Investment: An International Comparison, OECD, 1998b

In recent years, there has been increasing attention paid to estimating the costs and benefits of education. McMahon (1999) for example utilizes an endogenous development framework to estimate market and non-market impacts of education in developing and industrialized countries. Some research has specifically examined the costs of dropping out of high school. Chaplin and Lerman (1997) estimate that the private market costs of dropping out in the U.S. over the course of the lifetime are between $90,000 and $600,000 ($U.S.) per dropout. They report that these earnings losses reflect lost tax revenues for society of between $30,000 and $200,000 per dropout. In Canada, the Conference Board estimated the social costs of dropping out of high school (including both market and non-market factors) and found that 'Canada will lose more than $4 billion in present-value terms over the working lifetimes of the nearly 137,000 youths who dropped out of high school instead of graduating with the class of 1989' (Lafleur, 1992). There is some reason to believe that this may be an overestimate because, among other things, the dropout rate that was used (30 percent) is likely overly high. Furthermore, aggregate cost estimates cumulated over lifetimes sound dramatic, but are often difficult to interpret.

5.3 Private Market Returns to Education

Vaillancourt and Bourdeau-Primeau (Forthcoming) have estimated the private and total rates of return of a high school diploma in Canada and the provinces using 1996 Census data of 1995 income for those 15 years old and older. Their estimates provide a useful starting point to discuss the issues relating to estimating the costs of dropping out of high school.

Estimates of the Private Market Rates of Return

Private market rates of return are the difference between expected benefits and costs incurred for high school completion. Vaillancourt and Bourdeau-Primeau define the benefits as the additional lifetime earnings of individuals who complete high school, or the difference in the income profiles before and after investing in education.[22] The private costs include income forgone while attending school[23] and expenditures such as tuition and books. Table 7 shows the

[22] Census data for 1995 earnings are used to represent lifetime income. The sample includes one year of earnings for all individuals who reported positive earned income in 1995, except full-time students not in high school. Income includes salary, benefits and net income from self-employment. Income profile equations of the form: $\ln(\text{income}) = B_0 + B_1*\text{Age} + B_2*\text{Age}^2$ are estimated for five levels of education (grades 9 to 13). The income profiles are then simulated and the income profile data are constructed from the simulation solution.

[23] Forgone income is based on the income profile of the level of education one year below the student's final year. Forgone income is the portion of the income profile that represents the years when the youth was still in school.

estimated private market rates of return for obtaining a high school diploma relative to dropping out before graduating.[24]

Table 7: Private Market Rates of Return to a High School Diploma, Graduates Relative to Dropouts, Men and Women, Canada, 1995 (Percent)

	High school completion relative to:					
	Grade 9	Grade 10	Grade 11* 1 yr	Grade 11* 2 yrs	Grade 12	Grade 13
Men	30	41	67	37	29	30
Women	40	54	82	41	23	40

* Grade 11 with one year or two years remaining to earn a high school diploma.

Source: Vaillancourt and Bourdeau-Primeau, Forthcoming.

As shown, the estimated rates of return for completing high school are substantial for both men and women, whatever the number of years remaining before obtaining a diploma. For example, the private returns for graduating relative to leaving at Grade 10 are 41 percent for men and 54 percent for women. One might expect that the rates would be highest when comparing graduates to those that dropped out at Grade 9 and then to decline for subsequent grades. However, the rates of return are highest when comparing graduates to those that dropped out at Grades 10 or 11. To some extent the estimates reflect certain features of the data, estimation technique and underlying assumptions.

- Cross-sectional data from one year are used to build lifetime income profiles. Income profiles are estimated for each grade level, and then the income data are simulated. Given the high measurement errors of the estimated income profiles, it would not be surprising that rates of return did not decline uniformly relative to higher levels of educational attainment.
- The use of one year's data to proxy lifetime income would not take into account that the premium on a high school education has likely changed over time.

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[24] Rates of return are calculated using the following formula:

Net present value of investment in education = $$0 = \sum_{i=1}^{N} \frac{(A_i - B_i)}{(1+r)^i} - \text{costs}$$

where: A_I = income at i years of age after investment in education, for those who have graduated
B_I = income at i years of age before investment in education, for those who have dropped out before graduating
r = rate of return
N = number of years of earned income after the investment in education
costs = costs incurred – gross income for total market rates of return and net income for private rates of return

- Students from different provinces graduate in different years – in Grade 13 (OAC) in Ontario, in Grade 11 in Quebec, and in Grade 12 elsewhere. The authors have attempted to compensate for this by adopting a rule of thumb for the number of years remaining to graduation at each grade level, but the match is not exact. Based on the rule of thumb, the direct costs and forgone revenues decline sharply to Grade 11, and then remain constant for grades 11, 12 and 13, which would explain in part the sharp rise in rates of return up to Grade 11, then the stabilization thereafter.
- High school education costs are based on a proxy calculated as the weighted average of total education costs for elementary and secondary schools, assuming that average elementary school education costs 75 percent of secondary school education. Vaillancourt and Bourdeau-Primeau resorted to using this proxy because of data limitations.

Table 8 presents estimates for Canada's five major regions. Vaillancourt and Bourdeau-Primeau produced a regional rather than a provincial breakdown in order to obtain a sufficient sample size of income profiles for estimating the rates of return.

Table 8: Private Market Rates of Return (%) to a High School Diploma by Region, Graduates Relative to Dropouts, Men and Women, Canada, 1995

	High school completion relative to:		
	Grade 10	Grade 11	Grade 12
Atlantic			
Men	27	30	18
Women	36	26	0
Quebec			
Men	20	26	26
Women	28	37	25
Ontario			
Men	37	75	41
Women	55	110	41
Prairies			
Men	52	75	16
Women	35	74	0
British Columbia			
Men	56	91	29
Women	70	74	34

Note: Zero indicates the return is not positive.

Source: Vaillancourt and Bourdeau-Primeau, Forthcoming.

The rates of return are substantial for both men and women graduates regardless of the region and the number of years remaining before obtaining a diploma. The highest rates of return, again, are for graduates relative to those that left school at grades 10 or 11. Residents of Ontario, the Prairies and British Columbia have significantly higher rates of return than do residents of Quebec and the Atlantic Region. Recall that Ontario and the western provinces also have lower dropout rates than the eastern provinces. Quebec's rate of return is especially low, due in part to it having the highest estimated forgone revenue of all regions.

There are wide variations in results. For example, the return is 110 percent for Ontario women graduates relative to those who left school in Grade 11. Women graduates relative to those that dropped out at Grade 12 have a negative rate of return in the Atlantic and Prairie regions. It would be interesting to see how sensitive the estimates are to assumptions relating to the income profile and the cost of education.

Net Present Value Income Estimates

The net present values (NPV) of additional individual lifetime earnings associated with completing high school is calculated by discounting these additional income flows at some rate to express them in present value terms for a given year. Table 9 presents the NPV of income estimates, net of costs, over the lifetime for men and women graduates relative to dropouts. A low and a high discount rate – 3 percent and 6 percent – are used to calculate the NPV in 1995 dollars.

Table 9: Net Present Value Income Estimates ($), Differential of Graduates'Income to Dropouts'Income over the Lifetime, Men and Women, by Discount Rate, Canada, 1995

	Discount rate	*High school completion relative to:*				
		Grade 9	Grade 10	Grade 11	Grade 12	Grade 13
Men	3%	138,000	111,000	84,000	52,000	66,000
	6%	74,000	63,000	49,000	27,000	36,000
Women	3%	87,000	121,000	45,000	7,000	10,000
	6%	52,000	66,000	30,000	5,000	9,000

Source: Vaillancourt and Bourdeau-Primeau, Forthcoming.

The NPV of additional income for high school completion over the working lives of men and women graduates is substantial. When a discount rate of 3 percent is used, the NPV of additional

income for graduates is $138,000 for men and $87,000 for women relative to their cohorts that leave high school at Grade 9. The NPV is much higher for men than women graduates in the more senior grades (i.e., grades 11, 12 and 13). It is not clear why women's NPVs drop off so much more dramatically than men's in the final two years.

5.4 Taking Into Account the Public Sector

Table 10 presents estimates of the total monetary rates of return to society of a high school diploma for graduates relative to dropouts. In addition to the private market rates of return, total monetary returns also include returns to the public sector. Part of the additional earnings attributable to education is shared with governments through taxation. The public sector also provides most of the direct resources for high school education.[25]

Table 10: Total Monetary Rates of Return to a High School Diploma, Graduates Relative to Dropouts, Men and Women, Canada, 1995 (Percent)

	High school completion relative to:					
	Grade 9	Grade 10	Grade 11*		Grade 12	Grade 13
			1 yr	2 yrs		
Men	14	17	26	15	15	17
Women	12	17	21	11	3	22

* Grade 11 with one year or two years remaining to earn a high school diploma.

Source: Vaillancourt and Bourdeau-Primeau, Forthcoming.

The total monetary rates of return are smaller than the private rates of return presented above because of the large costs of education assumed by governments. Still, the rates of return are reasonably substantial – 17 percent for male and female graduates relative to those that dropped out at Grade 10. As in the previous estimates, the rates of return rise through to Grade 11, ease off in Grade 12, and then increase again in Grade 13.

Table 11 presents estimates for total monetary rates of return by region. Total monetary rates of return are higher for residents from the Prairie provinces, British Columbia and Ontario. The rates of return are highest once again when comparing graduates to those that dropped out at Grades 10 and 11.

[25] Estimates of the combined cost of elementary and high school education is provided by Statistics Canada for 1995-1996 (Statistics Canada 1998). Some assumptions are made to calculate the costs separately. Specifically, it is assumed that elementary school costs are 75 percent of high school costs, which is the ratio calculated for Ontario for 1985 using figures from Education Statistics Ontario (1987). Costs are estimated for each province/region.

Table 11: Total Monetary Rates of Return to a High School Diploma by Region, Graduates Relative to Dropouts, Men and Women, Canada, 1995 (Percent)

	High school completion relative to:		
	Grade 10	Grade 11	Grade 12
Atlantic			
Men	15	15	10
Women	12	10	0
Quebec			
Men	11	14	12
Women	11	15	12
Ontario			
Men	15	25	17
Women	15	26	12
Prairies			
Men	21	30	10
Women	13	20	0
British Columbia			
Men	19	28	11
Women	16	21	0

Note: Zero indicates the return is not positive.

Source: Vaillancourt and Bourdeau-Primeau, Forthcoming.

The variation in total rates of return is smaller across regions than it is for private rates of return, in part because of the offsetting effect of the direct social costs of education in some regions. Direct social costs of education are lowest in the Atlantic region, which has a low private rate of return, and highest in British Columbia, which has a high private rate of return.[26]

5.5 Summary

The social costs and benefits of education include market and non-market factors from both public and private spheres. Estimates by Vaillancourt and Bourdeau-Primeau of the private market rates of return for completing high school are substantial – more than 40 percent for graduates relative to those that dropped out at Grade 10. Net present value estimates of private income associated with high school completion are similarly substantial – more than $100,000 for Canadian high school graduates over the lifetime relative to those that drop out at Grade 10, when the discount rate is 3 percent.

[26] The direct social costs of education by region are $6,879 in the Atlantic, $9,171 in Quebec, $9,421 in Ontario, $7,822 in the prairies and $9,707 in British Columbia.

Estimates of the total monetary rates of return to society for high school completion are also considerable – 17 percent when comparing graduates to those that dropped out at Grade 10. The OECD has noted that a 'rate of return of 10 per cent on an investment may be treated as a threshold rate above which rates of return may be viewed as "socially profitable" compared with alternative investments in physical or financial capital' (OECD 1997, p. 268). Rates of return to society would be higher if it were possible to include non-market benefits.

The research conducted by Vaillancourt and Bourdeau-Primeau provides a consistent set of estimates for all of Canada and for the regions, and thus is a useful springboard to launch further work on the costs of dropping out of high school. The sensitivity of these estimates to the various assumptions regarding costs and income profiles could be determined, which will help to assess the importance of these assumptions. A range could then be calculated for the key estimates.

The work by Vaillancourt and Bourdeau-Primeau brings to light several issues that need to be addressed in future studies on the costs of dropping out.

The first is the importance of improving data sources. Carefully specified and innovative estimation techniques cannot entirely overcome the limitations of single year, cross-sectional data. Longitudinal databases can track individual outcomes and therefore take into account the relationship between individual characteristics, education and income.

By 1999, the dropout rate in Canada had fallen to 12 percent among 20 to 24 year olds. Doubtless the rate could go much lower. However, we should ask ourselves whether there are diminishing returns after a point. For example, what are the economic benefits of keeping low achievers in school? Simply granting them a diploma will not improve their productivity if their levels of achievement do not improve. Work needs to be done to have a better understanding of the relationship between students' achievement levels and the level of schooling they have attained.

The rates of return reported here are generally calculated for an "average individual." Yet as an earlier chapter demonstrated, dropouts have very different characteristics than those who have completed high school. Those who are encouraged to stay in school or re-enter after they have

dropped out are likely to impose a higher than average education cost, even when they are close to completing high school. This is partly because many of the reasons behind their original decision to drop out would not have gone away, and so attrition rates would remain high. Innovative programs tailored to the needs of those at risk of dropping out are especially costly.[27] Indirect costs could also be high – for example, daycare for single mothers. Therefore, a cost-benefit calculation that used average costs would tend to overestimate the rates of return to finishing high school.

Similarly, the potential income stream could vary widely among graduates, depending on their individual characteristics. Chaplin and Lerman (1997) suggest that at the individual level, the private costs of dropping out in the United States are subject to considerable variation, in part because of wide variation in the earnings of dropouts and graduates.

All this is to say that a more comprehensive modeling approach to the costs of dropping out needs to be considered. Some features of the Audas and Willms (Forthcoming) model might be considered, namely,

- the interplay of academic achievement, behaviour and engagement in school that determines the long process of "fading out" of school,
- socio-economic factors that influence academic achievement, behaviour and engagement, and ultimately the decision to drop out,
- factors relating to family, schools, neighbourhood and communities that would be amenable to policy intervention.

[27] Robert Crocker has estimated in a study for HRDC that an innovative "open learning" model costs $20,000 per graduate – and those in the program had already nearly completed high school.

6. Policy Options

The dropout rate has fallen steadily for several decades. Policies to lower dropout rates have been implemented, but the full cost and the number of people they benefit is difficult to determine. Preliminary estimates presented in this paper show that the costs of dropping out are high, and so consideration must be given to policy interventions that might be more effective in lowering the dropout rate. In particular, how much would policy interventions add to the average cost of education, and at what point would the costs of policy interventions offset the private or public benefits of lowering the dropout rate? This chapter outlines some policy options to reduce dropping out of high school, building on earlier discussions on the incidence of dropping out, the characteristics of dropouts, labour market outcomes of dropouts and the costs associated with dropping out.

1. Social Marketing

Some youth may be tempted to drop out because they may not fully realize the long-term benefits of staying in school. Evaluative information from the awareness campaign under the Stay-in-School initiative revealed that it was a successful social marketing campaign. Based on this experience, a similar social marketing campaign to promote the long-term benefits of high school completion in Canada could be considered.

A campaign would need to take into consideration that males and females disengage from school in very different ways. An awareness campaign targeted to males might address the long-term benefits in terms of improved employment outcomes of staying in school, despite the temptingly high wages of blue-collar jobs. A campaign targeted at females might focus on the relationship between dropping out, single parenthood, and the cycle of poverty.

2. Raise Legal Age for Leaving School

With some exceptions, youth in Canada are required legally to stay in school until the age of 16. The legal leaving age could be brought in line with the typical age of high school completion (i.e., 17 in Quebec and 18 elsewhere in Canada). New Brunswick is one province that recently increased the age at which students can leave school.

One difficulty with raising the legal age is that many young people leave school because they have dependent children, or because they work out of economic necessity. If the minimum age were raised, then other policies such as daycare programs or student income supplements would need to be put in place to make it possible for these students to attend school. These programs would increase the average cost of education. As well, many students already drop out before age 16, so this option would not likely be successful if used alone.

3. Improving Literacy

Poor literacy seems to be a root cause as well as a consequence of dropping out. Efforts could be focused on improving literacy in the early grades and through high school. Improved literacy increases achievement levels and so would likely enhance the benefits of staying in school.

More research needs to be conducted to ascertain what it is about the Canadian school system that leads to low literacy by international standards and the mechanisms that link low literacy and dropping out. Policies should be targeted and focused to be corrective.

4. Improving Special Education

Children with special needs are estimated to account for 15 to 20 percent of the student population in most OECD countries. With early intervention, with greater flexibility in instructional methods and approaches to match individual need with supplemental support in core skills such as reading and mathematics and with parent and community support, most would be able to graduate.

One method of dealing with those who have difficulty with academic courses is to place them in modified programs. For example, in some school systems those struggling with academic courses and those who are not motivated by the abstract and theoretical content of academic courses can choose practical or applied programs often with a vocational orientation.[28]

[28] Ontario is adopting a variation of this. In Grades 9 and 10, three types of courses are offered: academic courses, applied courses, and open courses. Academic courses emphasize theory and abstract problems. Applied courses focus on practical applications and concrete examples. Both types of courses set high expectations for students while preparing them for studies in the senior grades. Open courses, offered in all secondary school grades, are designed to prepare students for further study in certain subjects and to enrich their education generally. In Grades 11 and 12, courses offered to prepare students for post-secondary destinations include preparation courses for university, university/college, college, and the workplace. Open courses are also offered in Grades 11 and 12. Transfer courses offer students a means of transferring from one type of course to another.

There are several concerns about the benefits of modified programs. First, they can change the expectations of students who participate in the programs about what they can achieve when they leave school. Second, although these programs intend that students reach a standard level of achievement, this is not always the case, and when it is not, the benefit to the student will not be very high. Third, employers may not consider these programs to be equivalent to the standard high school diploma. Those who complete modified programs may also have difficulty being accepted into other post-secondary programs.[29] As well, diversification within schools can be costly, complicated and can increase the workload of teachers considerably. Special education may take resources away from other students unless specially trained teachers are hired, which adds further to the cost.

5. Alternate Pathways to High School Completion

The availability of alternative pathways to complete high school is often promoted by the OECD as a means of achieving more successful outcomes. Alternative pathways may encourage more students to finish school while preparing them for the workforce. In particular, technical programs and apprenticeships are often connected to the workplace. For example, in Ontario, the Youth Apprenticeship Program offers secondary students the opportunity to train as registered apprentices while still in school. In addition, reforms in Quebec and elsewhere promise curricula that better reflect the needs of a changing society including, but not exclusively concerned with, the needs of the workplace.

Yet, students in vocational programs have been stigmatized and have often finished high school without a sound foundation in basic skills. Their programs are perceived as having lower standards. As well, students and their parents may shy away from pathways that appear to deny access to post-secondary education. These programs must provide explicit links to formal education and training after high school.

6. Policies Directed to Families, Schools, or Community

Although many studies conclude that socio-economic factors for youth such as low levels of parental education, low socio-economic status, living alone or with no parents are strong

[29] Other more subtle forms of streaming exist in high schools, particularly in the selection of mathematics courses. As described in a recent paper by Doug Willms, higher level mathematics has served as a critical filter. Those who take the higher level mathematics have many more academic options.

predictors of dropping out, it is less obvious what the core causes are that lead to dropping out or the mechanisms through which they operate. Thus, the policy actions that would change or remove these are unclear. Furthermore, socio-economic factors may be difficult to change through policy. Work needs to be done to identify which factors relating to schools, family and community can be changed through policy, what their impact would be on dropping out, and how much funding would have to be directed to them.

7. Lower Minimum Wage for Workers 17 Years Old and Under

Minimum wages of youth could be lowered for those 17 years of age or less relative to those of adults over 18. In theory this might reduce the dropout rate. Indeed, Chapter 3 presented research that ranked a higher minimum wage as the number one predictor of dropping out. Some students, especially males, may be predisposed to abandon their education either because they have less motivation to study or because they are very uncertain about the likelihood of successfully completing their senior year, and lowering the minimum wage could tip the balance toward staying in school.

However, governments should carefully consider interventions such as lowering the minimum wage because of multiple effects. Furthermore, lowering the minimum wage for younger people could be challenged under the Charter of Rights. There is also evidence to suggest that lowering the minimum wage might not have the intended effect. Chapter 4 showed that a majority of male dropouts have weekly wages that are likely well above the minimum. Those working at the minimum wage are more likely to be females, who are less likely to give work-related reasons for dropping out than males are.

8. Non-accreditation Learning Options

In some situations, education could be taken out of the school and into the community and the focus placed on achievement rather than accreditation. Community-based adult learning centers and mature student diploma programs could be improved. These types of programs have been shown to work for particular populations such as Aboriginal students. Such programs could allow those who have dropped out of school to gain valuable work skills in alternative learning settings. A primary challenge would be in gaining recognition from employers and educational institutes of non-accreditation options.

7. Conclusion

This paper set out to summarize data on Canadian high school dropout rates and to present additional information on the characteristics of dropouts. Another key objective was to examine the potential costs of dropping out of high school to both individuals and to society.

The term "dropout rate" has been used to refer to the proportion of people in a specified age group who have left high school without graduating at a given point in time. As discussed in Chapter 2, estimates of the high school dropout rate vary, depending on the methodology used. Findings from the School Leavers Follow-up Survey reveal that 15 percent of 24 year-old youth had not completed high school, or its equivalent, in 1995. The Labour Force Survey estimates that 11.9 percent of 20-24 year-olds had not completed high school or its equivalent in 1999, compared to 17.1 percent in 1990.

A number of characteristics typify Canadian dropouts. They are more often male than female. Four in ten mention their school experience as the reason they decided to drop out. Young men tend to respond to the "discouraged worker" effect and drop out because of workplace responsibilities. Young women tend to drop out for personal or family reasons, often to take care of dependent children. Dropouts tend to have been living alone or with a single parent in their last year of high school. Parents' level of education, their socio-economic status and their attitudes toward education also impact the likelihood of their children completing high school. Aboriginal youth in particular have a high risk of dropping out. The process of withdrawal from school is the interaction of a number of factors including disengagement from school, underachievement and misbehaviour. Dropouts are more likely to have lower marks, are less likely to be satisfied with school or engaged in school life. Problems with school failure and misbehaviour often begin in the early school years, reflecting a protracted process of disengagement. Dropouts have very low levels of literacy compared to graduates and by international standards.

High school dropouts have worse labour market outcomes than graduates, particularly female dropouts. Male dropouts have slightly lower full-time wages than graduates. Yet, both male and female dropouts have considerably lower employment rates and higher unemployment rates than graduates. A particularly troubling consequence of dropping out of high school is that these

youth seem to be cut off from opportunities to improve their skills with more education and training.

Estimates of the private market rates of returns to high school completion, as presented in Chapter 5, suggest that they are considerable. For graduates relative to those that dropped out at Grade 10, the private rates of return are over 40 percent for young men and women. The net present value of income over the lifetime is over $100,000 relative to those that leave school at Grade10 when the discount rate is 3 percent. The total monetary rates of return to society for high school completion are also considerable. When comparing graduates to those with a Grade 10 education, the total monetary rate of return is 17 percent.

Given that the estimates of the costs of dropping out are substantial, consideration must be given to policy interventions that might be effective in lowering the dropout rate. The policy options discussed here relate to awareness campaigns, raising the legal age at which youth can leave school, improving literacy, modifying programs for those who have difficulties with academic programs, developing alternative pathways to the workplace, policies directed to families, schools and the community, lowering the minimum wage, and developing non-accreditation learning options. The next steps involve determining whether and how various policies would improve the chances of students staying in school, and at what cost.

Appendix A

Impacts of Education Identified by Haveman and Wolfe (1984)		
Channel of impact of schooling	*Economic nature of impact*	*Nature of existing research on magnitude of impact*
1. Individual market productivity	Private; marketed; human capital investment	Extensive research on the magnitude of market earnings impact, by demographic group and type of schooling
2. Non-wage labour market remuneration	Private; marketed and non-marketed; human capital investment	Some research on differences in fringe benefits and working conditions by education level
3. Leisure	Private; non-marketed; consumption	Wage rate differences in (1) form shadow prices which could be used to value leisure, but seldom are
4. Individual productivity in knowledge production	Private; non-marketed; human capital investment	Some evidence that schooling increases productivity in the production of human capital investment
5. Non-market individual productivity (e.g. do-it-yourself)	Private; non-marketed; human capital investment	Some evidence of education-induced reduction in female home production time, but increase in quality; no evidence for males
6. Intra-family productivity	Private; some external effects; both marketed and non-marketed; human capital investment	Relationship between wife's schooling and husband's earnings, apart from selectivity, is well-established
7. Child quality through home activities	Private; some external effects; both marketed and non-marketed; human capital investment	Substantial evidence that child quality in several dimensions (health, cognitive development, education, occupation status, future earnings) is positively and significantly related to mother's and father's education
8. Own health	Private; modest external effects; partially marketed; human capital investment and consumption	Evidence that own schooling positively and significantly affects health status and, on an aggregate level, that more education decreases mortality
9. Spouse and family health	Private (within household); modest external effects; partially marketed; human capital investment and consumption	Evidence that own and spouse's schooling positively and significantly affects health status and, on an aggregate level, that more education decreases mortality
10a. Fertility (viz. Attainment of desired family size)	Private (within household); non-marketed; consumption	Research on contraceptive use and techniques suggests that efficiency in contraceptive and attainment of desired family size is related to education

Channel of impact of schooling	*Economic nature of impact*	*Nature of existing research on magnitude of impact*
10b. Fertility (viz. Changed tastes for children)	Private (within household); some external effects; non-marketed; consumption	Evidence suggests that schooling reduces desired family size
11. "Entertainment"	Private; non-marketed; consumption	Education appears to be consumed for its intrinsic value, and possibly to broaden forms of entertainment enjoyed
12. Consumer choice efficiency	Private; some external effects; non-marketed; human capital investment	There is evidence that education alters budget allocations in the same direction as income, implying the existence of positive efficiency effect
13. Labour market search efficiency (including migration)	Private; some external effects; non-marketed; human capital investment	Some evidence that job search costs reduced with improved information and knowledge, and job and regional mobility increased
14. Marital choice efficiency	Private; minor external effects; non-marketed; consumption	Some evidence of improved sorting in the marriage market and assortative mating by intelligence
15. Crime reduction	Public good	Evidence that education is, ceteris paribus, positively associated with reduced criminal activity
16. Social cohesion	Public good	Impressionistic evidence of a positive relationship with education
17. Technological change	Public good	Limited evidence that education influences economic behaviour in terms of research and development
18. Income distribution	Public good	Evidence on the direction of impact on education on income equality is mixed
19. Savings	Private; some external effects; marketed productive factor	Holding constant income and other savings determinants, education appears to be positively associated with savings rates
20. Charitable giving	Both private and public; non-marketed	Evidence that education increases both money and time donations

Source: Haveman and Wolfe (1984), pp. 382-386

Appendix B

Examples of Factors Associated with Dropping Out Identified by the Conference Board of Canada	
Individual student	*Rest of society*
Market factors	
Lower lifetime after-tax earnings of dropout	Lower tax collections
Savings in costs to student associated with staying in school - books, tuition - income foregone while attending school	Savings in costs to society to educate students to graduation - school board expenditures
Non-market factors	
Lower non-wage benefits of work - working conditions - status	Decreased participation in the electoral and political process
Lower level of personal health	Higher administration costs of welfare programs
Decreased opportunity for mobility and training	Higher costs associated with crime prevention and detection
Decreased probability of finding a job	Decreased level of charitable giving
Lower return on investment portfolio	Decreased social cohesion
Less highly educated offspring	
Decreased financial security	
Decreased cultural enjoyment	

Source: Lafleur (1992), p. 6.

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